Vivekanand College, Kolhapur
(An Empowered Autonomous Institute)

Structure & Syllabus in Accordance with National Educational Policy - 2020

For the degree of

M.A. in Geography

Department of Geography
Faculty of Arts
Two- Years PG Programme

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
PG Department of Geography
Departmental Teaching & Evaluation Scheme
(Introduced from June 2025 Onwards)
M. A. II: Semester-III & IV

Sr. No.	Course Abbr.	Course code	Course Name	Teaching Scheme Hours/week		Examination Scheme and Marks				Course Credits
				TH	PR	ESE	CIE	PR	Marks	
Semester-III										
1	DSC-V	DSC35GEO31	Oceanography	4	-	80	20	-	100	4
2	DSC-VI	DSC35GEO32	Fundamentals of RS	4	-	80	20	-	100	4
3	DSE-III	DSE35GEO31	Biogeography	4	-	80	20	-	100	4
		DSE35GEO32	Geography of Environment							
4	DSC-PR-III	DSC35GEO39	Photogrammetry and Remote Sensing	4	-	80	20	-	100	4
5	RPR-I	RPR35GEO39	Research Project	-	12	-	-	150	150	6
Semester –III Total				**16**	**12**	**320**	**80**	**150**	**550**	**22**
Semester-IV										
1	DSC-VII	DSC35GEO41	Regional Planning and Development	4	-	80	20	-	100	4
2	DSC-VIII	DSC35GEO42	Development of Geographical Thought	4	-	80	20	-	100	4
3	DSE- IV	DSE35GEO41	Agriculture Geography	4	-	80	20	-	100	4
		DSE35GEO42	Resource Geography							
4	DSC-PR-IV	DSC35GEO49	Geographical Data Representation Methods – IV	-	12	-	-	150	150	6
5	RPR-II	RPR35GEO49	Research Project	-	4			100	100	4
Semester –IV Total				**12**	**16**	**240**	**60**	**250**	**550**	**22**
Total Sem I & II				**28**	**28**	**560**	**140**	**400**	**1100**	**44**

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Oceanography, DSC-V
Course Code: DSC35GEO31

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Know about the development of methods of scientific observation in hydrology and Oceanography;*
2. *Understand the origin, importance and distribution of water on Earth;*
3. *Learn about the hydro-geological, coastal and marine processes, landforms and resources;*
4. *Recognize the role of oceans to deal with the vulnerability of the dynamic earth system;*
5. *Comprehend about the recent trends in research in Geohydrology and Oceanography;*

Unit-1: Introduction to Oceanography and Ocean Basins 15 Lectures

Concept and scope of Oceanography, Branches of Oceanography: Geological, Physical, Chemical, and Biological, Origin and evolution of oceans, Theory of Plate Tectonics, Seafloor spreading and mid-ocean ridges, Formation of ocean basins, Island arcs: origin and evolution, Estuarine & coastal processes and landforms

Unit-2: Geological Features of the Ocean Floor 10 Lectures

Ocean floor topography: Continental shelf, slope, and rise, Submarine channels and canyons, Hills, ridges, and trenches, Abyssal plains

Bottom relief of: Pacific Ocean, Atlantic Ocean, Indian Ocean

Unit-3: Physical and Chemical Oceanography 15 Lectures

Air-sea interaction: energy exchange, wind patterns,

Oceanic circulation: Surface currents (Pacific, Atlantic, Indian), Waves and tides,

Properties of seawater: Salinity, temperature, and density, Thermohaline circulation

Major water masses of the world's oceans, Oceanic conveyor belt

(Global heat transport system)

Unit-4: Biological Oceanography, Ocean Resources & Environmental Issues 20 Lectures

Biological productivity in oceans, Coral reefs: origin, growth, and distribution, Ocean deposits: origin, types (terrigenous, biogenous, hydrogenous), and distribution, Sea level changes and their causes, Marine resources: renewable and non-renewable, Oceanic regions and marine biodiversity, Marine pollution: types, causes, and impacts.

References:

Books & Reports:

1. **Cech, T.V. (2009)**: *Principles of Water Resources: History, Development, Management, and Policy (3rd Ed.)*, Wiley, Hoboken, New Jersey, 576pp.
2. **Chow, V.T.,** Maidment, D.R., and Mays, L.W. **(2010)**: *Applied Hydrology*, McGraw-Hill, Chennai,

572pp.

3. **Christopherson, R.W. (2012)**: *Geosystems: An Introduction to Physical Geography (8th Ed.)*, Prentice Hall, New Jersey, 693pp.
4. **Davie, T.,** and Quinn, N.W. **(2019)**: *Fundamentals of Hydrology (3rd Ed.)*, Routledge, New York, 285pp.
5. **Davis, R.,** and Fitzgerald, D. **(2003)**: *Beaches and Coasts*, Wiley-Blackwell, Hoboken, New Jersey, 432pp.
6. **Day, T. (2008)**: *Oceans (Rev. Ed.)*, Facts on File, New York, 337pp.
7. **Fitts, C.R. (2002)**: *Groundwater Science*, Academic Press, 450pp.
8. **Garrison, T. (2009)**: *Essentials of Oceanography (5th Ed.)*, Brooks/Cole, Belmont, California, 463pp.
9. **Garrison, T.** and Ellis, R. **(2016)**: *Oceanography: An Invitation to Marine Science (9th Ed.)*, Cengage Learning, Boston, 604pp.
10. **Han, D. (2010)**: *Concise Hydrology*, Dawai Han and Ventus Publishing, 145pp.

Pinder, G.F., and Celia, M.A. **(2006)**: *Subsurface Hydrology*, Wiley, Hoboken, New Jersey, 485pp

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Fundamentals of Remote Sensing, DSC-VI
Course Code: DSC35GEO32

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Understand the principles and concepts of remote sensing and its role in capturing and analyzing Earth's data.*
2. *Describe the different types of remote sensing platforms, sensors, and image acquisition systems used in the field.*
3. *Interpret and analyze aerial photographs and satellite images using visual interpretation techniques.*
4. *Apply digital image processing techniques for feature extraction, including texture, shape, and spectral indices.*
5. *Explore emerging trends and technologies in remote sensing and digital image processing.*

Unit-1: Introduction & Principles of Remote Sensing **20 Lectures**

Definition and scope of remote sensing; History and development of remote sensing technology; Electromagnetic radiation (EMR) and electromagnetic spectrum; EMR interaction with atmosphere and earth surface; Atmospheric window and spectral reflectance curve; Resolutions in remote sensing; Types of remote sensing; Principles and applications of optical remote sensing.

Unit-2: Aerial Photography **12 Lectures**

Aerial photographs: types, scale, & resolution; Types of aerial cameras and photographic films; Geometry of aerial photographs; Parallax, relief displacement, orthophotos; Elements of visual image interpretation.

Unit-3: Satellite Remote Sensing **14 Lectures**

Satellite: types and their characteristics; Types of Sensors; Orbital and sensor characteristics of major earth resource satellites: LANDSAT, SPOT, Sentinel & Quickbard; Recent developments of Indian remote sensing satellite programme.

Unit-4: Digital Image Processing **14 Lectures**

Introduction to digital image and image processing; Sources of Errors: Geometric and radiometric; Image rectification; Image enhancement: methods and techniques; Image classification: supervised and unsupervised; Image accuracy assessment.

References:

Books & Reports:

1. Aber, J.S., Marzolff, I., and Ries, J. (2010): *Small-Format Aerial Photography: Principles,Techniques and Geoscience Applications*, Elsevier, Amsterdam, 268pp.

2. Campbell, J.B., and Wynne, R.H. (2011): *Introduction to Remote Sensing (5th Ed.)*, Guilford Press, New York, 667pp.
3. Jensen, J.R. (2006): *Remote Sensing of the Environment: An Earth Resource Perspective (2ndEd.)*, Prentice Hall, New Jersey, 608pp.
4. Konecny, G. (2003): *Geoinformation: Remote sensing, Photogrammetry and GeographicInformation Systems*, Taylor & Francis, London, 266pp.
5. Lillesand, T.M., Kiefer, R.W., and Chipman, J.W. (2007): *Remote Sensing and ImageInterpretation (6th Ed.)*. Wiley, New Jersey, 804pp.
6. Morgan, D., and Falkner, E. (2001): *Aerial Mapping: Methods and Applications (2nd Ed.),* CRC Press, Boca Raton, Florida, 216pp.
7. Quattrochi, D.A., and Goodchild, M.F. (1997): *Scale in Remote Sensing and GIS*, CRC Press, Boca Raton, Florida, 432pp.
8. Reddy, M.A. (2008): *Textbook of Remote Sensing and Geographical Information System (3rdEd.),* BS Publications, Hyderabad, 476p
9. Sabins, F.F. (2007): *Remote* Sensing*: Principles* and Interpretation (*3rd* Ed.*)*, Waveland Press, Long Grove, Illinois, 512pp.
10. Schowengerdt, R.A. (2006): *Remote Sensing: Models and Methods for Image Processing (3rdEd.)*, Elsevier, Amsterdam, 560pp.
11. Wolf, P., DeWitt, B., Wilkinson, B. (2012): *Elements of Photogrammetry with Applicationin GIS (4th Ed.)*, McGraw-Hill, New York, 640pp.

Research Journals:

Remote Sensing of Environment

ASPRS Photogrammetric Engineering and Remote Sensing IJPRS Journal of Photogrammetry and Remote Sensing International Journal of Remote Sensing
IEEE Transactions on Geosciences and Remote Sensing IEEE Letters on Geosciences and Remote Sensing Journal of the Indian Society of Remote Sensing

Websites:

Indian Space Research Organisation (ISRO), India: http://www.isro.org National Remote Sensing Centre (NRSC), India: http://www.nrsc.gov.in
National Aeronautics and Space Administration (NASA), USA: http://www.nasa.gov National Oceanic and Atmospheric Administration (NOAA), USA: http://www.noaa.gov United States Geological Survey (USGS), USA: http://www.usgs.gov
International Society for Photogrammetry and Remote Sensing (ISPRS): http://www.isprs.org Wikimapia: http://www.wikimapia.org
Bhuvan: http://www.bhuvan.nrsc.gov.in

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Biogeography, DSE-III
Course Code: DSE35GEO31

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Understand the concepts and historical development of biogeography*
2. *Get comprehensive knowledge of different classification of animal and plants*
3. *Know about pattern of biogeography*
4. *Understand different processes in biogeography*
5. *Get detail knowledge about influencing factors on biogeography*

Unit-1: Concepts and Theories in Biogeography 15 Lectures

Nature of Biogeography, History of Biogeography – Plate tectonic and biotic change, Communities and patterns in biogeography – Biomes, Hotspots, biodiversity, alpha beta diversity and niche. Importance to society, conservation biogeography, island biogeography, phytogeography, phylogeography.

Unit-2: Influencing Factors 15 Lectures

Influencing factors on life- physical, climatic and biological. Influence of humans, disturbance factors – physical and biological, changing continents and climates, conservation of biogeography

Unit-3: Classification of Animals and Plants 15 Lectures

Classifications of animals and plants taxonomical, ecological and geographical, equilibrium theory, neutral theory, species area relationship. Latitudinal and altitudinal distribution. Wallace classification.

Unit-4: Processes in Biogeography 15 Lectures

Processes – evolution (life of origin theory, evolution theory), dispersal and vicariance, speciation, extinction, invasion, and colonization. Biological interactions – predations, competition, mutualism, parasitism and mimicry.

References:

1. Barry C. (1977): Biogeography – An ecological & evolutionary Approach, Oxford.
2. Cole M.M. (1975): Recent developments in Biogeography, Longman,London.
3. Danserau P. (1957): Biogeography- An Ecological perspective, Renold Press, New York.
4. Darlington P.J. (1957): Zoogeography – Methew, New York.
5. Furley P.A, & Newly W.N.(1983): Geography of the Biosphere : Butter Worth, London.
6. Joy T.V. (1997); Biogeography – study of plants in the ecosphere.
7. Mathur H.S. (1986): Elements of Biogeography, Pointer Jaipur.
8. Martin C. (1975): Plant Geography. Methuen, London.

9. Muller P. (1986): Biogeography; Harper & Row, New York.
10. New big in M.I. (1986): Plant & Animal Geography : Methuen, London.
11. Pears N. (1985): Basic Biogeography, Longman, London.
12. Watts, d. (1971): Principles of Biogeography, McMillan, London.
Simmms T. G.: Biogeography, Natural & Cultural, Arnold & Heinemann, London

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Geography of Environment, DSE-III
Course Code: DSE35GEO32

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Know about contents and methods of Geography of Environment as an academic and professional discipline.*
2. *Understand elements of environment and acquire knowledge about biodiversity*
3. *Get knowledge about natural hazards and management*
4. *Understand the various environmental issues and policies*

Unit-1:15 Lectures

Concept of environment: Major elements of environment; Functioning of environmental systems: role of biotic and abiotic elements; Biodiversity: meaning, factors influencing biodiversity.

Unit-2:15 Lectures

Ecosystem (geographic classification) terrestrial and aquatic ecosystems - location, types and characteristics; Energy flow in an ecosystem; food chain, food web and Ecological pyramids; succession; Biogeochemical cycles (carbon, nitrogen and oxygen).

Unit-3:15 Lectures

Environmental hazards and disasters: earthquakes, tsunami, tropical cyclones, droughts, floods, forest fires: distribution, causes and consequences; Global warming, Disaster management in Maharashtra and India.

Unit-4:15 Lectures

Conservation and management of environment; Concept of sustainable development; environmental pollution (water, Air, Noise), Land degradation; Environmental impact assessment; Environmental issues, policies and efforts in India, International programmes and Policies (Brundtland commission, Kyoto protocol, agenda 21, Sustainable development goals, Paris agreement).

References:

Books & Reports:

1. Abbott, P.L: Natural Disasters, McGraw-Hill, London.
2. Botkin, D.B., Keller, E.A. (2007): Environmental science: Earth as a Living Planet. John Wiley and Sons, New York.
3. Cunningham, W. Cunningham, Mary: Environmental Science: A Global Concern (2010). MacGraw-Hill, London.

4. Government of India (2010): Status of Environment Report. New Delhi.
5. Keller, E.A, Vecchio, D.E.de: Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes. Prentice Hall, New York.
6. Marsh, W.M., Grossa, J. (2005): Environmental Geography: Science, land use, and Earth Systems. John Wiley, New York.
7. McKinney, M.L., Schoch, R.M. (2003): Environmental science: Systems and Solutions. Jones &Bartlett Learning.
8. Miller, G.T, Spoolman, Scott (2011): Environmental Science. Brooks Cloe, London.
9. Raven, P.H, Berg, L.R, Hassenzahl, D.M Peter: Environment. John Wiley, New Delhi.
10. Wright, R.T., Nebel, B.J. (2005): Environmental science: Toward a sustainable future. Pearson/Prentice Hall, New Jersey.
11. R.B. Singh (1990): Environmental Geography, Heritage Publishers, New Delhi
12. R. B. Singh (Ed): Disaster Management, Rawat Publication, New Delhi,
13. Saxena, H.M (2000): Environmental Geography, Rawat publication, New Delhi
14. H. K. Gupta (2003) (Ed): Disaster Management, University Press, India
15. Chandna, R. C. (2002): Environmental Geography, Kalyani, Ludhiana
16. Cunninghum, W. P. and Cunninghum, M. A. (2004): Principles of Environmental Science: Inquiry and Applications, Tata McGraw Hill, New Delhi
17. Goudie, A. (2001): The Nature of the Environment, Blackwell, Oxford
18. Miller, G. T. (2004): Environmental Science: Working with the Earth, Thomson Brooks Cole, Singapore
19. MoEF (2006): National Environmental Policy-2006, Ministry of Environment and Forests, Government of India, New Delhi
20. Singh, S. (1997): Environmental Geography, PrayagPustakBhawan, Allahabad
21. UNEP (2007): Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme

Research Journals:

- *Energy & Environmental Science Frontiers in Ecology and the Environment*
- *Global Environmental Change-Human and Policy Dimensions Annual Review of Environment and Resources*
- *Environment International*
- *Review of Environmental Economics and Policy Environmental Research Letters*

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Photogrammetry and Remote Sensing, DSC-PR-III
Course Code: DSC35GEO39

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Understand the fundamental principles and concepts of photogrammetry, remote sensing, and digital image processing.*
2. *Describe the various sensors, platforms, and techniques used in photogrammetry and remote sensing.*
3. *Apply photogrammetric techniques to extract three-dimensional information from aerial photographs and digital images.*
4. *Apply digital image processing techniques for enhancing and analyzing remote sensing data.*
5. *To apply the knowledge of remote sensing and DIP in various thematic studies*

Unit-1: Practical in Photogrammetry 60 Hrs.

Exercise-

1: Indexing of aerial photographs.

Exercise-

2: Introduction to stereoscopes

2.1 : Orientation & construction of 3-D model under Pocket stereoscope
2.2 : Stereoscopic Vision test Exercise-3: Determination of scale
3.1 : By establishing relationship between Photo distance and Ground distance
3.2 : By establishing relationship between Photo distance and Map distance
3.3 : By establishing relationship between Focal length and Flying height
3.4 Determination of Average Scale of Vertical Aerial Photograph Exercise-
4: Relief Displacement

4.1 : Calculation of Relief Displacement Exercise-
5: Parallax

5.1 : Object height determination from Parallax
Exercise-6: Visual Interpretation and Mapping of Aerial Photographs.

Unit-2: Practicals in Satellite Remote Sensing 20 Hrs.

Exercise-7: Study of satellite image browsing system

`Exercise-8: Visual interpretation of satellite images (True Color, FCC and Thermal)

Unit-3: Practicals in DIP 40 Hrs.

Exercise-9: Introduction to DIP software

Exercise-10: Loading of image data, study of histogram and layer information Exercise-11: Layer stacking and Interpretation of FCC image

Exercise-12: Supervised Classification Exercise-13: Unsupervised classification Exercise-14: Accuracy assessment

References:

1. American Society of Photogrammetry, (1983). Manual of Remote Sensing, (2nd edition), ASP, Falls Church, Virginia.
2. Agarwal, C.S. and Garg, P.K. 2000. Textbook of Rem and Management. New Delhi: Wheeler Publishing.
3. Avery, T.E. 1985. Interpretation of aerial Photographs. Minneapolis, Minnesota: Burgess Publishing Company.
4. Bakker, Wim H., et al. 2001. Principles of Remote Sensing – An Introductory Textbook. Enschede, The Netherlands: ITC.
5. Banerjee, R.K. and Banerjee, B. 2000. Remote Sensing for Regional Development. New Delhi: Concept Publishing Company.
6. Campbell, James B. 1996. Introduction to Remote Sensing (Second Edition). London: Taylor & Francis.
7. Colwell, Robert N. (ed.) 1983. Manual of Remote Sensing, Second Edition, Volume 1 and 2. Falls Church, Virginia: American Society of Photogrammetry.
8. Gibson, Paul J. (2000). Introductory Remote Sensing – Principles and Concepts. Rout ledge.
9. Jensen, John R. 2000. Remote Sensing of the Environment – An Earth Resource Perspective. Pearson Educat ion (First Indian Edition, 2003).
10. Hord, R. Michae l. 1986. Remote Sensing – Methods and Applications. (A Wiley-Interscience Publication). New York: John Wiley & Sons.
11. Lillesand, T.M., Kiefer, R.W., and Chipman, J.W. 2004. Remote Sensing and Image Interpretation (5th Ed.). Wiley. (Wiley Student Edition).
12. Miller, V.C. 1961. Photogeology. New York: McGraw-Hill, Book Company, Inc.
13. Moffit, H.F., and Edward, M.M., 1980. Photogrammetry, Harperand Row Publishers, New York.
14. Paine, D.P. 1981. Aerial Photography and Image Interpretation for Resource Management. John Wiley & Sons.
15. Panda, B.C. 2005. Remote Sensing – Principles and Applications. New Delhi: Viva Books Private Limited.8
16. Rampal, K.K. 1999. Handbook of Aerial Photography and Interpretation. New Delhi: Concept Publishing Company.
17. Rashid, S.M. (Ed.) 1993. Remote Sensing in Geography. Delhi: Manak Publications, Pvt. Ltd.
18. Reddy, M.A. 2006. Textbook of Remote Sensing and geographicalInformation Systems. Hyderabad:
    B.S. Publications.
19. Sabins F.F Jr.1987, Remote Sensing: Principles and Interpretation, W.H.Freeman& Co., New York.
20. Wolf. P .R., 1974 .Elements of Photogrammetry, McGraw Hill books Co., London.

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - III
Research Project, RPR-I
Course Code: RPR35GEO39

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Recognize the objectives and significance of research work;*
2. *Formulate research design and methods;*
3. *Organize and carry out field visits, collect field data and/or conduct review of literature;*
4. *Effective writing, maintaining research ethics and academic integrity;*
5. *Preparation and dissemination of research output having scientific and/or social relevance.*

Topic: Research topic should be related to finding, reporting and/or disseminating geographical knowledge having scientific and/or social relevance.

1. *Students are required to select a research topic of geographical importance based on empirical evidences of literature to fulfil the requirement of the society.*

2. *They are expected to carry out field work and use primary and/or secondary data, analyze it and prepare / submit the dissertation / project report for evaluation.*

3. *Students are also expected to present / publish the research output.*

4. *Allotment of guides / supervisor (teaching faculty) will be made at the end of the semester II.*

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Regional Planning and Development, DSC - VII
Course Code: DSC35GEO41

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Understand the basic concepts in regional planning*
2. *Understand different methods in order to compute regional development*
3. *Get acquainted with theories and models for regional development*
4. *Get a specialized knowledge of policies and experiences of regional planning in India.*

Unit-1: Concepts in Regional Planning **15 Lectures**

Region-Concept, types and hierarchy of regions - planning- concept and types, Planning region- concept and characteristics of a planning region, Delineation of planning region, Indicators for measuring development, Development-meaning, growth versus development, Measurement of regional development.

Unit-2: Theories and Models for Regional Development **15 Lectures**

Theories and models for regional development: spread and backwash concept. Core and periphery concept, Central place theory, Growth pole, Growth foci approach, Garden city concept, green belt concept.

Unit-3: Policies and Experiences of Regional Planning **15 Lectures**

Policies and experiences of regional planning in India, Institutional framework from national planning level to regional development plans, Tennessee valley authority (USA), Damodar valley corporation (India).

Unit-4: Regional planning in India **15 Lectures**

Regional planning in India- rural and urban planning. Regional disparities in India, Planning for tribal area, Hilly area, Command area, and Drought-prone area development.

References:

1. Adrill, J. (1974): New Citizens Guide to Town and Country Planning, Charies knight and Company Ltd. London.
2. Alden, J. and Morgan, (1974): Regional Planning: A Comprehensive View, Leonard Hill Books, Beds.

3. Berry, BJ.L. and Horton, F.F. (1970): Geographic Perspectives on Urban
4. Bhat L.S. (1972): Regional Planning In India, Statistical Publishing Society
5. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
6. Chand, M. &Puri, V. (1983): Regional Planning in India, Allied Publishers Ltd., New Delhi.
7. Chandra, R.C. (2000): Regional Planning and Development, Kalyani Publishers, Ludhiana.
8. Cook. P. (1983): Theories of Planning and Spatial Development, Hutchinson & Company Ltd. London.
9. Diamond, D. (ed) (1982): Regional Disparities and Regional Policies, Pergamon Press, Oxford. Dickinson
   R.E. (1964): City and Region: A Geographical Interpretation. Routledge and Keagan Paul
10. Dickinson, R.E. (1964): City and Region, Rutledge, London.
11. Friedman, J. &Alonson W. (1964): Regional Development and Planning. MIT Press. Cambridge.
12. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts.
13. Galasson, John (1974): An Introduction to Regional Planning Hutchinson. Educational London.
14. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.
15. Gore C. G., Köhler G., Reich U-P. andZiesemer T., 1996: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention, Metropolis- Verlag, Marburg.
16. Hall, P. (1992): Urban and Regional Planning, Routledge, London.
17. Haynes J., 2008: Development Studies, Polity Short Introduction Series.
18. Hilborot, J.G.M (1971): Regional Planning. Rotterdam University Press, Rotterdam.
19. Johnson E. A. J., 1970: The Organization of Space in Developing Countries, MIT Press, Massachusetts.
20. Kulshetra ,S.K,(2012) : Urban and Regional Planning in India : A hand book for Professional Practioners , Sage Publication , New Delhi
21. Kundu, A. (1992): Urban Development Urban Research in India, Khanna Publ. New Delhi.
22. Misra , R.P, Sundaram K.V, PrakashRao , VLS(1974): Regional Development Planning in India , Vikas Publication , New Delhi
23. Misra, R.P (1992): Regional Planning: Concepts , techniques , Policies and Case
24. Misra, R.P. (1992): Regional Planning. Concept Publishing Company. New Delhi.
25. Reddi, K. V. (1988): Rural Development in India, Himalaya Pub, Mumbai.
26. Singh, R.L.(2008): Fundamentals of Human Geography, SharadaPustakBhawan, Allahabad, Studies , Concept, New Delhi
27. Sundran, K.V. (1977): Urban and Regional Planning in India, Vikas Publishing, New Delhi.
28. Swawy, M.C.K., Bhaskara, R. Hegde, V.M. (eds.) (2008): Urban Planning and Development at Cross Roads, BC Books for Change, Bangalore.
29. Whynnes, Charles &Hammand (1979): Elements of Human Geography, George Aflen& Unwin, London.

Web Sites http://planningcommission.gov.in/ https://plan.maharashtra.gov.in/ https://dtp.maharashtra.gov.in/en http://planningcommission.nic.in/ http://ncrpb.nic.in/ http://dda.org.in/ddaweb/index.aspx https://mmrda.maharashtra.gov.in/home/ http://www.cmdachennai.gov.in/ http://www.kmdaonline.org/ http://www.bmrda.kar.nic.in/

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Development of Modern Geographical Thought, DSC - VIII
Course Code: DSC35GEO42

Course Outcome (COs): *After completion of this course, the students will*

1. *Acquire knowledge about the historical development of the subject during different time scales.*
2. *Apprehend the place of geography in the field of science, social science and natural science.*
3. *Understand all the concepts of philosophy in geography.*

Recognize different types of dualism and find solutions to terminate them by applying various types of scientific explanations.

Unit-1 Introduction **20 Lectures**

General nature of geographic knowledge during the Ancient and Medieval period; Field of Geography; its place in classification of science; geography as a social and natural science; relationship of geography with other disciplines; concepts in philosophy of geography; Areal differentiation and Spatial organization.

Unit-2 Dualism in Geography **10 Lectures**

Dualism in Geography: systematic and regional; physical and human; idiographic and nomothetic; concept of determinism and possibilism.

Unit-3 Modern Geography **10 Lectures**

Founders of Modern geography with special reference to: i) Bernhardus Varenius, ii) Immanuel Kant, iii) Alexander Von Humboldt, iv) Friedrich Ratzel, v) Carl Ritter, vi) Richard Hartshorne. Trends in development of geography as a discipline in India.

Unit-4 Scientific Explanations and Approaches **20 Lectures**

Scientific Explanations: routes to scientific explanations (inductive / deductive); types of explanations (cognitive, description, cause and effect, temporal); theories, laws and models; quantitative revolution; Approaches: Humanism, Behaviouralism, and Feminism; Recent trends in Geography.

References:

Books & Reports:

1. **Abler**, Adams, J. & Gould, P. **(1971)**: Spatial Organization. The Geographer's View of the World, Prentice Hall, New Jersey.
2. **Adhikari**, Sudeepta **(1972)**: Fundamentals of Geographic Thought, Chaitanya Publishing House,

Allahabad.

3. **Amedeo**, Douglas **(1971)**: An Introduction to Scientific Reasoning in Geography, John Wiley,U.S.A.,1971.
4. **Braithwaite**, E.B **(1960)**: Scientific Explanation, Harper Toreh Books, New York.
5. **Chorley** & Haggett **(1968)** Models in Geography, Mithuen& Co. Ltd. London
6. **Dickinson**, R.E. **(1969)**: The Makers of Modern Geography, Hall Book Depo, Bhopal Prenrtice-Hall of India, New Delhi. (English and Hindi).
7. **Dikshit**, R. D. **(2018)**: Geographical Thought: A Contextual History Of Ideas, PHI Learning, Delhi.
8. **Dixit**, R.D. **(1999)**: The Arts and Science of Geography, Integrated Readings; Prentice Hall Of India Private Ltd, New Delhi.
9. **Freeman**, T.W. **(1965)**: Geography As Social Science, Harper International Edition Harper & Row, Publishers, New York.
10. **Gold**, J.R. **(1980)**: An Introduction to Behavioural Geography, Oxford University Press, Oxford.
11. **Gregory**, et. al (eds.) **(2009)**: The Dictionary of Human Geography, Wiley-Blackwell, London.
12. **Hartshorne**, R. **(1939)**: The Nature of Geography, Lancaster, Association of American Geographers.
13. **Hartshorne**, R. **(1959)**: Perspective on the Nature of Geography. Rand Mcnally, Chicago.
14. **Harvey**, D. **(1969)**: Explanation in Geography, London, Edward Arnold.
15. **Holt** Jensen, Arid **(1998)** : Geography: History and Concepts, Sage Publication, New Delhi.
16. **James** P.E. ed. **(1972)**: All Possible Worlds, John Wiley and Sons, New York

Johnston R. J. & Sidaway, J. D. **(2004)**: Geography and Geographers, 6th Edition, Edward Arnold, London.

17. **Johnston**, R.J. **(1988)**: The Future of Geography, Methuen, London.
18. **Johnston**, R.J., Gregory, D., Smith, D.M. (Ed) **(1986)**: The Dictionary of Human Geography, Blackwell.
19. **Kapur** Anu (ed.) **(2001)**: Indian Geography – Voice of Concern, Concept Publishing Company, Delhi.
20. **Ley**, D Samuel, M.S. (ed.) **(1978)**: Humanistic Geography: Prospects and Problems, Croom Helm.
21. **Majid**, Hussain (1999): Geographic Thought, Rawat Publishing House, Jaipur.
22. **Minshull**, R. **(1970)**: The Changing Nature of Geography, Hutchinson University Library, London.
23. **Peet** R. And Thirft, N. (Eds.): New Models in Geography, Vo. I & II Unwin Hyman.
24. **Peet**, R. **(1977)**: Radical Geography - Alternative View Points on Contemporary Social Issue. Methuen & Co. Ltd. London.
25. **Peet**, R. **(1998)**: Modern Geographical Thought, Blackwell Publishers Inc. Massachusetts.
26. **Pickles**, I. **(1985)**: Phenomenology, Science and Geography: Spatiality and The Human Sciences, Cambridge, Cambridge University Press.
27. **Singh**, R.L. **(2008)**: Fundamentals of Human Geography, Sharada Pustak Bhawan, Allahabad.
28. **Soja**, E.W. **(1977)**: Postmodern Geographies, Rawat Publications, Jaipur.
29. **Taylor**, G **(1951)**: Geography in the 20th Century, Methuen and Co. Ltd., London
30. **Unwin**, T. **(1992)**: The Place of Geography, Longman, UK.

Journal Articles:

1. **Brosseau**, M. **(1994)** 'Geography's literature', *Progress in Human Geography*, 18: 333-53.
2. **Bunge**, W. **(1979)** The Science of Geography, *Annals, Association of American Geographers*, 69:128-32.

3. **Bunting**, T.E, Guelke, L. **(1979)**: Behavioral and Perception Geography: A Critical Appraisal, Annals, *Association of American Geographers*, 69:448-62.

4. **Burton**, I **(1963)**: The Quantitative Revolution And Theoretical Geography, *The Canadian Geographer* 7:151- 62.

5. **Fennemen**, N.M. (1919) The circumference of Geography, *Annals of Association of American Geographers*,
IX. Pp 3-11

6. **Peet**, R. **(1985)**: The Social Origin of Environmental Determinism, *Annals of Association of American Geographers*, 75:309-83.

7. **Garrison**, W. **(1956)** 'Applicability of statistical inference to geographical research', *Geographical Review*, 46, 427-9.

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Agricultural Geography, DSE - IV
Course Code: DSE35GEO41

Course Outcomes (COs): *After completing the course, students will be able to*

1. *Know about nature, scope and significance of agricultural geography as an academic and professional discipline.*
2. *Understand the fundamental concept, crop combination, diversification, agricultural productivity and study the determinants of agricultural patterns.*
3. *Get knowledge about agricultural systems of the world.*
4. *Understand the agrarian revolution, socio-economic constraints, agricultural problems and policies*

Unit-1:15 Lectures

Definition, nature, scope and significance of agricultural geography; Origin and dispersion of agriculture; Approaches to the study of agricultural geography.

Unit-2:15 Lectures

Determinants of agricultural patterns-physical, economic and technological; Agricultural systems of the world - location, distribution, types & characteristics of agriculture.

Unit-3:15 Lectures

Concept & techniques of delimitation of agricultural regions- Crop combination, Crop diversification; Measurement and determinants of agricultural Productivity, Agricultural land use theory- Von Thunen's model of Land Use planning.

Unit-4:15 Lectures

Agricultural Revolution in India (Green, White) Nature, Socio-economic constraints in the adoption, performance, Problems & prospects. Land use survey, Land classification and land capability, Dry land Agriculture, Food Security, Organic farming. Impact of climate change on agriculture. Agricultural Policies in India.

References:

1. AlkaGautam (2012): Agricultural Geography, Sharda PustakBhawan, Allahabad.
2. Brown, L.R. (1990): The Changing World Food Prospects - The Nineties and Beyond. World Watch Institute, Washington D.C.,
3. Dyson, T. (1996): Population and Food - Global Trends and Future Prospects. Routledge, London,.
4. Gregory, H.F (1970): Geography of Agriculture: Themes in Research. Prentice–Hall, Englewood Cliff. London.
5. Ilbury, B.W. (1983): Agricultural Geography. Oxford University Press, London.
6. Bhatt, M.S (ed.) 2004: Poverty and Food Security in India Problems and Policies. Akkar Books, New

Delhi.

7. Morgan W.B. &Muton R.C.(1971): Agricultural Geography, Mathuen, London.
8. United Nations (2009): Sustainable Agriculture and Food Security in Asia and the Pacific. United Nations Publications.
9. Singh Jasbir& Dhillon S.S (2004): Agricultural Geography, Tata Mc-Graw Hill Education, New Delhi.
10. Bhatia B.M. (1977): Poverty Agriculture & Economic Growth, Vikas New Delhi.
11. Chorley, R. &Haggett P (1971): Socio-Economic Models in Geography, Methuen, London.
12. Grigg, D.B. (1973): The Agricultural systems of The World, Cambridge University Press.
13. Hagerstrand, T (1968): Innovation Diffusion as a spatial process, University of Chicago Press.
14. Hussain, M. (1999): Systematic Agricultural Geography, Rawat publications, Jaipur.(India)
15. Shafi M. (1983): Agricultural Productivity and Regional Imbalances a Study of Uttar Pradesh, Concept, New Delhi.
16. Symon, L. (1968): Agricultural Geography, London.
17. Sauer, C.O. (1969): Agricultural Origins and Dispersals. M.I.T. Press, Mass, U.S.A.
18. Sharma, T.C., Coutinho, O. (1989): Green Revolution Gaps: A Geographical Analysis, Indian Council of Social Science Research, New Delhi.

Research Journals:

Global Food Security - Agriculture Policy Economics and Environment Agriculture Ecosystems & Environment

Journal of the Science of Food and Agriculture Agricultural Systems

Journal of Agricultural and Food Chemistry Agricultural Water Management

Journal of Agricultural Economics Agricultural Economics

International Journal of Agricultural Sustainability Journal of Agricultural & Environmental Ethics

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Resource Geography, DSE - IV
Course Code: DSE35GEO42

Course Outcomes (COs): *Upon successful completion of this course, students will be able to:*

1. *Establish the relationship between the regional geography and natural resources as a whole.*
2. *Assess the major natural resources and source regions of the world. .*
3. *Assess the impact of exploitation on conservation of resources.*
4. *Understand the qualitative and quantitative aspects of human resource development.*
5. *Look into the national policy of India on natural resources and human resources.*

Unit: 1 15 Lectures

Definition, Nature and Scope, Concept and Classification of Resources. Distribution and Characteristics of Major Natural Resources and source regions of the World: Soils, Forest, Water. Power and Minerals – petroleum, coal, Iron ore, Bauxite, Copper, Tin.

Unit: 2 15 Lectures

Exploitation, uses and conservation of resources: forest, water, soil, fisheries, minerals and energy resources (coal, petroleum), and non –conventional energy resources.

Unit: 3 20 Lectures

Human Resources: Quantitative and Qualitative aspects, population growth, distribution and density pattern, causes of inequalities. Population and resources relationship-carrying capacity of land under different environment.

Unit: 4 10 Lectures

National and global Policies on Natural Resources. Global organizations for sustainable development of resources. Population Policy and Programmes in India.

Reference:

1. Asthana, D. K. (2018), A Textbook of Environmental Studies, S Chand Publishers, New Delhi.
2. Bruntland, G. (1987). *Our Common Future, World Commission on Environment & Development.* Oxford: Oxford University Press
3. Eherlich & Eherlich. (1977). *Ecoscience: Population Resource and Environment.* SanFrancisco:

W.H. Freeman
4. Gadgil, Madhav and RamachandraGuha (2000). *The use and abuse of nature*, New Delhi, Oxford University Press
5. Husain, Majid, (1999) Population Geography, Mc Graw Hill Publisher.
6. Husain, Majid, (2022) India and World Geography Mc Graw Hill Publisher.
7. Kate, R.W and Ian Burton (1986). *Geography, Resources and Environment Vol.II*. (ed), Chicago: Chicago University Press.
8. Sunil Munshi(1984) *Resource, regions and regional disparity in India*, New Delhi: People's Publishing house.
9. Tiwari Vijay (2017) A Textbook of Environmental Studies, Himalay Publishers.
10. Valdiya, K. S. (2013) Environmental Geology: Ecology, Resource and Hazard Management, 2nd Edition, McGraw-Hill Education (India) Private Limited.
11. Yeqiao Wang, (2023), Handbook on natural resources, ISBN 9781032474441, CRC Press

Websites:

1. http://westbengalforest.gov.in//upload/development/cm8.pdf
2. https://www.routledge.com/Policy-Instruments-for-Environmental-and-Natural-Resource- Management/Sterner-Coria/p/book/9781617260988
3. https://ncert.nic.in/textbook/pdf/iess202.pdf
4. https://www.eolss.net/sample-chapters/c04/E6-147-20.pdf
5. https://education.nationalgeographic.org/resources
6. https://proxy.library.mcgill.ca/login?url=http://site.ebrary.com/lib/mcgill/detail.action?docID=10134778
7. https://mcgill.on.worldcat.org/oclc/50694882
8. https://www.scientificamerican.com/article/natural resources/
9. https://ncert.nic.in/ncerts/naturalresource
10. https://www.nsf.gov/geo/acgeo/geovision/nsf_acgeo_dynamic-earth-2015-20.pdf
11. https://onlinelibrary.wiley.com/naturalresoureces

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Geographical Data Representation Methods, DSC-PR-IV
Course Code: DSC35GEO49

Course Outcomes (COs): *Upon successful completion of this course, students will be able to:*

1. *Know basic cartographic techniques of human geography*
2. *Make graphical representation of geographical data*
3. *Analyse demographic, social, economic, agricultural and industrial data*
4. *Prepare suitable maps and diagrams for effective visual representation*

Practical Exercise(s):

Unit-1: 3/30 Hrs.

1-2: Measures of population growth (absolute, arithmetic and exponential).

3-6: Graphical representation of population distribution and composition of age, sex, rural-urban and occupational structure.

7-9: Calculation and representation of fertility (crude birth rate, general fertility rate); mortality (crude death rate, infant mortality rate) and literacy rate (crude literacy rate, specific literacy rate).

Unit-2: 3/30 Hrs.

10: Computation of human development index.

11-13: Calculation and representation of health, social and economic wellbeing indicators.

14-15: Calculation and representation of wealth inequality: Lorenz curve and Gini Co-efficient.

16-17: Measurement of agricultural efficiency and intensity; methods of delineating crop combination regions (Weaver, Doi, Raifulla method).

18: Calculation of food security index (composite method of availability & accessibility).

Unit-3: 3/30 Hrs.

19-20: Analysis of industrial intensity: location quotient, index of similarity, location co-efficient, location curve.

21: Measurement of industrial development

22-24: Road accessibility matrix, gravity model showing transport interaction, traffic flow analysis.

Unit-4: 3/30 Hrs.

25: Nearest Neighbor Analysis.

26: Density functions and pattern analysis of distribution of settlement (randomness and spacing indices). 27-28: Breaking point analysis (Losch), measures of centrality (Christaller), connectivity (Pitts).

29: Rank size distribution of towns (Zipf and Berry-Garrison). 30: Functional classification of towns (Harris and Nelson).

References:

Cole, J.P. and King, C.A.M. (1968): Quantitative Geography, John Wiley and Sons, UK. Lawrence, G.R.P. (1973): Cartographic methods, Methuen & Co. London.

Maity, S.K. (2021): Essential Geographical Techniques in Geography, Springer, Singapore. Mishra, R.P. (1982): Fundamentals of cartography, Prasaranga, University of Mysore.

Monkhouse, F.J.R and Wilkinson, H.R: Maps & diagrams, Methuen & company, London. Bogue, Donald (1969): Principles of Demography, John Wiley & Sons Inc, New York.

Newell C. (1990): Methods and Models in Demography. The Guilford Press.

Sarkar Ashish (2015): Practical geography: A systematic approach. Orient Blackswan, New Delhi. Singh, L.R. (2022): Fundamentals of Practical Geography, Sharda Pustak Bhawan.

Swanson DA., Siegel JS. (2004): Methods and Materials of Demography. Emerald Group Publishing.

Toyne, Peter; Newby P.T (1971): Techniques in Human Geography, Nelson Thornes Ltd.

United Nation Development Program (UNDP): Human Development Reports (1990-2022).

Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Syllabus, M.A. (Part II), Semester - IV
Research Project – II, RPR-II
Course Code: RPR35GEO49

Course Outcomes (COs): *Upon successful completion of this course, students will be able to:*

1. *Recognize the objectives and significance of research work;*
2. *Formulate research design and methods;*
3. *Organize and carry out field visits, collect field data and/or conduct review of literature;*
4. *Effective writing, maintaining research ethics and academic integrity;*
5. *Preparation and dissemination of research output having scientific and/or social relevance;*
6. *Assimilate cultural, economic and environmental diversity encountered during study tour / Geographical Excursion.*

Unit-1: Research Project – II 150 Hrs.

Research topic should be related to finding, reporting and/or disseminating geographical knowledge having scientific and/or social relevance.

Unit-2: Study Tour / Geographical Excursion 30 Hrs.

Study tours and visits to places having important geographical features/ landforms and/or social & cultural relevance.

Total Contact Hours: 180 Hrs.

Note (s):

1. *Research topic and work for Research Project- II (Dissertation) preferably should be different for each student.*
2. *Students are required to select a research topic of geographical importance based on empirical evidences of literature.*
3. *They are expected to carry out field work and use primary and/or secondary data, analyze it and prepare / submit the dissertation / project report for evaluation.*
4. *Students are also expected to present / publish the research output.*
5. *Allotment of guides / supervisor (teaching faculty) will be made at the end of the semester III.*