

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune 05

T.Y.B.A. Geography NEP 2023 Pattern

Syllabus

To be implemented from Academic Year 2025-26

Semester	Paper	Subject code	Title of Paper	No. of credits
Semester V				
T.Y.B.A. Sem V	Major Paper 10 (Theory)	23ArGeoU5101	Geography of India-I	4
	Major Paper 11 (Practical)	23ArGeoU5102	Lab Course on Map Reading and Interpretation	4
	Major Paper 12 (Theory)	23ArGeoU5103	Geomorphology	2
	Major Elective	23ArGeoU5201	Watershed Management I	4
		23ArGeoU5202	Cultural Geography	4
	Minor (Minor Paper IV)	23ArGeoU5301	Political Geography	4
	VSC (Major Specific Practical)	23ArGeoU5501	Lab Course on Cartographic Techniques	2
	FP (FP II)	23ArGeoU5001	Field Project II	2
Semester VI				
T.Y.B.A. Sem VI	Major Paper 13 (Theory)	23ArGeoU6101	Geography of India-II	4
	Major Paper 14 (Practical)	23ArGeoU6102	Lab Course on Techniques of Spatial Analysis	4

	Major Paper 15 (Theory)	23ArGeoU6103	Climatology	2
	Major Elective	23ArGeoU6201	Watershed Management II	4
		23ArGeoU6202	Geography of Thought	4
	Minor (Minor Paper IV)	23ArGeoU6301	Urban Geography	4
	OJT	23CpCopU6004	On Job Training	4

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous), Shivajinagar, Pune 05
T.Y.B.A. Geography (Major)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU5101
Title of the Course: Geography of India-I

Credits: 04

Examination Scheme: CIA: 40 Marks

Total Lectures: 60

End-Sem: 60 Marks

Course Objectives:

- To acquaint the students with geographical extent of India and the dynamics of India's relations with the world.
- To help students understand the physiographic features of India.
- To make students familiar with the intricate network of drainage system in India.
- To help students understand the different types of soil and forests in India and its distribution.

	Semester – V	Lectures
Unit 1	Introduction	7
	A. Location and Extent B. Relation with Neighboring countries C. Geopolitical significance of Indian Ocean	
Unit 2	Physiography	15
	A. The Northern mountainous region B. The Great Plain of North India C. The Peninsular Plateau D. Coastal lowlands E. Islands	
Unit 3	Drainage	15
	A. The Himalayan River System i. The Indus Drainage basin ii. The Ganga Drainage basin iii. The Brahmaputra Drainage basin B. The Peninsular River System i. East Flowing Rivers: Godavari, Krishna ii. West Flowing Rivers: Narmada, Tapi,	
Unit 4	Climate	13
	A. Characteristics of Indian Climate B. Various Seasons and associated Weather C. Monsoon: Origin and Mechanism D. Distribution and Variability of Rainfall	
Unit 5	Soil and Natural Vegetation	10
	A. Types of Soil and its Distribution B. Types of Forest and its Distribution	

Course Outcomes:

Students will able to

1. Understand the geographical extent of India.
2. Analyze the relations of India with the world.
3. Acquainted with the physiographic features of India.
4. Understand the intricate network of rivers in India and its significance for the society.
5. Familiarized with the climate of India, the seasons and its associated weather.
6. Learn the mechanism of monsoon and agro-climatic regions of India.
7. Analyze the problem of soil degradation deforestation and its conservation methods.

References:

1. Bandyopadhyaya, J. (2003). *The making of India's foreign policy*. Allied Publishers.
2. Kale, V. S. (Ed.). (2014). *Landscapes and landforms of India*. Springer.
3. Khullar D. R. (2011) *India A Comprehensive Geography*, Kalyani Publishers, Ludhiana.
4. Sharma, H. S. and Kale, V. S. (2009): *Geomorphology in India*, Prayag Pustak Bhavan, Prayagraj.
5. Singh, S. (2013). *Climatology*. Pravalika Publications, Prayagraj.
6. Singh, S. (2023). *Geomorphology*. Pravalika Publications, Prayagraj.
7. Husain, M. (2014). *Geography of India*. Tata McGraw-Hill Education.
8. Lal, D. (2012). *Climatology*. Sharda Pustak Bhavan, Prayagraj.
9. Lutgens, F. K. and Tarbuck, E. J. & Tasa, D. (2012). *The Atmosphere – An Introduction to Meteorology*. Pearson Prentice Hall, New Jersey, U.S.A.
10. Spate, O. H. K. (1954): *A General and Regional Geography*, Methuen publisher, London.

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**T.Y.B.A. Geography (Major)
(2023 Course under NEP 2020)**

Course Code: 23ArGeoU5102

Title of the Course: Lab Course on Map Reading and Interpretation

Credits: 04

Total Practicals: 30

Exam scheme: CIE-40 Marks

ESE-60 Marks

Course Objectives:

1. To Introduce the Students with SOI Toposheets and to acquire the Knowledge of Toposheet Reading/Interpretation.
2. To familiarize the students with the weather instruments and their applications in Geographical phenomena.
3. To acquaint the students with IMD weather maps and to gain the knowledge of weather Map Reading / interpretation.
4. To train the students in elementary statistics as an essential part of geography.
5. To awareness about GIS among the students.

	Semester – V	Practicals
Unit 1	Toposheets	05
	A. Introduction to Survey of India (SOI) toposheets, Marginal Information, Grid reference, Conventional signs and symbols B. Types of toposheet/Indexing of toposheets i. 1:1000000/Million sheet ii. 1:250000/Degree sheet/Quarter inch sheet iii. 1:100000/Half inch sheet iv. 1:50000/One inch sheet v. 1:25000 vi. 1: 5000	
Unit 2	Methods of Relief Representation	07
	A. Methods of Relief Representation i. Qualitative :- Hachures, Hill shading, Layer Tint ii. Quantitative:- Contours, Form lines, Bench Marks, Spot Heights, Triangulation Mark, Relative Height (r) B. Representation of Relief features by Contours i. Concave Slope, Convex Slope, Steep Slope, Gentle Slope, Terraced / Uniform ii. Conical Hill, Spur, Plateau, Ridge, Saddle, Pass, Cliff & Waterfall C. Profile :Cross Profile and Longitudinal Profile	
Unit 3	Toposheet Reading and Interpretation	08
	A. Reading of SOI Toposheet i. Plain region ii. Plateau region iii. Mountainous/hilly region	
Unit 4	Weather Maps & Reading	08
	A. Introduction to Weather Maps	

	B. Sign & Symbols in Daily Weather Report used by India Meteorological Department (IMD) C. Isobaric pattern: Cyclones, Anticyclones , Trough, Wedge & Col, Secondary Depression D. Reading of Weather Map of three seasons: Summer, Monsoon & Winter	
Unit 5	Experiential learning	02
	A. One day field Excursion for orientation of Toposheet, observation and Identification of geographical features and preparation of a brief Report. Or one day visit to IMD and preparation of report.	

Course Outcomes:

Students will be able to:

1. Understand the structure, indexing, and classification of Survey of India (SOI) toposheets.
2. Identify and interpret marginal information, grid references, and conventional signs on toposheets.
3. Utilize different methods of relief representation, including qualitative (hachures, hill shading, and layer tinting) and quantitative (contours, benchmarks, and spot heights).
4. Construct and interpret contour-based landforms such as slopes, plateaus, ridges, saddles, cliffs, and waterfalls.
5. Read and analyze SOI toposheets for different regions, including plains, plateaus, and mountainous terrains.
6. Interpret weather maps, recognize meteorological symbols, and analyze isobaric patterns like cyclones, anticyclones, and troughs.
7. Apply theoretical knowledge through a one-day field excursion, identifying geographical features and preparing a detailed report.

References:

1. Aher, A. B., Chodhari, A. P. & Bharambe, S. N. (2015). *Techniques of Spatial Analysis*. Prashant Publication, Jalgaon.
2. Aronoff, S. (1989). *Geographic information systems: a management perspective*. DDL Publication, Ottawa.
3. Burrough, P. A. (1986). *Principles of geographical Information systems for land resource assessment*. Oxford University Press, New York.
4. Choudhar, A. P., Jadhav, S. & Choudhari, A. (2013). *Pratyakshik Bhugol (Practical Geography)*. Prashant Publication. (Marathi Edition).
5. Cole, J. P., & King, C. A. M. (1968). *Quantitative geography: Techniques and theories in geography* (No. 91: 51 COL), John Wiley, London.
6. Maguire, D. J., Goodchild, M. F. & Rhind, DW (eds.). (1991). *Geographical Information Systems: Principles and Applications*. Taylor & Francis, Washington.

7. Misra, R. P., & Ramesh, A. (1989). *Fundamentals of cartography*. Concept Publishing Company, New Delhi.
8. Monmonier, M. S. (1982). *Computer-assisted Cartography*. Prentice-Hall, Englewood Cliff, New Jersey.
9. Peuquet, D. J. and Marble, D. F. (1990). *Introductory Reading in Geographic Information Systems*. Taylor & Francis, Washington.
10. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). *Elements of cartography*. John Wiley & sons. Inc., New York, USA.
11. Sarkar, A. (1997). *Practical Geography: A systematic approach*. Oriental Longman, Calcutta.
12. Singh, R. L. & Dutt, P. B. (1979). *Elements of Practical Geography*. Kalyani Publishers, New Delhi.
13. Star, J., & Estes, J. (1990). *Geographic information systems: An introduction*. Prentice-Hall, Englewood Cliff, New Jersey.
14. Taylor, D. F. (1991). *Geographic information system*. Pergamon Press, Oxford.
15. Unwin, D. J. (1981). *Introductory spatial analysis* (Vol. 748). Taylor & Francis.

Course Objectives:

1. To study the basic concepts and theories of Geomorphology.
2. To learn the utility and applications of Geomorphology in different areas and environment.
3. To understand the dynamic nature of the Earth's surface, various processes, and landforms.

	Semester – V	Lectures
Unit 1	Introduction	06
	A. Definition, Nature and Scope B. Geological time scale and Evolution of Earth C. Applied Geomorphology	
Unit 2	The Earth	08
	A. Interior of the Earth: Composition & Structure B. Wegener's Continental Drift Theory	
Unit 3	Plate Tectonics	08
	A. Theory of Plate tectonics (Plate boundaries and associated landforms) B. Earthquakes and Volcanism, their types, causes and effects	
Unit 4	Geomorphic Processes	08
	A. Crustal movements: Folding and faulting and their types B. Erosional and depositional landforms: River and Sea waves	

Course Outcomes:

Students will be able to

1. Learn the fundamental concepts, processes, theories, and changing nature of the subject.
2. Acquainted with geological time scale and applicability of geomorphologic knowledge.
3. Understand the structure and composition of interior of the earth.
4. Learn the mechanisms of plate movement and landforms associated with it.
5. Classify the rocks on the basis of origin and classification.
6. Relate the weathering process and their types.

References:

1. Conserva, H. T. (2004). *Illustrated Dictionary of Physical Geography*, Author House, USA.
2. Gabler, R. E., Petersen, J. F. & Trapasso, L. M. (2006). *Essentials of Physical Geography* (8th Edition), Brooks/Cole Pub. Co., USA.
3. Husain, M. (2001). *Fundamentals of Physical Geography*, Rawat Publication, Jaipur.
4. Kale, V. S., & Gupta, A. (2010). *Introduction to Geomorphology*. Hyderabad: Universities Press.
5. Monkhouse, F.J. (1996). *Principles of Physical Geography*, Hodder and Stoughton, London.
6. Robinson, H. (1969). *Morphology and Landscape*, University Tutorial Press Ltd, London.
7. Siddhartha, K. (2001). *The Earth's Dynamic Surface*, Kisalaya Publications Pvt. Ltd, New Delhi.
8. Singh, S. (2002). *Geomorphology*, Allahabad: Prayag Pustak Bhawan.
9. Strahler, A. H., & Strahler, A. N. (1992). *Modern Physical Geography*, New Jersey: John Wiley and Sons.

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T. Y. B. A. Geography (Major Electives)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU5201

Title of the Course: Watershed Management - I

Credits: 04

Examination Scheme: CIA: 40Marks

Total Lectures: 60

End-Sem: 60Marks

Course Objectives:

1. To introduce the concept and significance of watershed management
2. To develop an understanding of watershed characteristics and hydrological processes
3. To provide knowledge about soil properties, erosion, and land-use classification

	Semester – V	Lectures
Unit 1	Introduction to watershed	15
	A. Watershed: meaning, definition, functions and classification on the basis of size, region, land use B. Delineation of watershed C. Characteristics of watershed: geomorphological and hydrological D. Identification of problems in watershed Region	
Unit 2	Concept of Watershed Management	15
	A. Definition, Principles and Objectives B. Need of watershed management C. Integrated and multi-disciplinary approach for watershed management	
Unit 3	Hydrological cycle and Ecological process	15
	A. Hydrological cycle, B. Mechanism : Precipitation, interception, infiltration, evaporation and evapo-transpiration, runoff, ground water-flow C. Water Analysis and Water Budget of the watershed D. Ecological characteristics of the river	
Unit 4	Soil	15
	A. Soil characteristics: Physical, Hydrological B. Soil erosion: Meaning and Causes C. Soil loss estimation	

Course Outcomes:

Students will be able to:

1. Understand the Fundamentals of Watershed Management, its principles and objectives.
2. Identify the need for watershed management in sustainable resource planning.
3. Recognize common problems and challenges in watershed management.
4. Analyse geomorphological and Hydrological Characteristics of Watershed as well as the ecological characteristics of river systems within a watershed.
5. Evaluate Soil Properties and Land Use in Watersheds

References:

1. Brosius, J. P., Lovelace, G., & Martini, F. (2005). *Disciplines and Interdisciplinary Practices: The Case of Watershed Management*. *Society & Natural Resources*, 18(3), 199-212.
2. Dhruvanarayana, V. V., Sastry, G., & Patnaik, U. S. *Watershed Management*.
3. Elliot, W. J., Schwab, G. O., Fangmeier, D. D., & Frevert, R. K. (1993). *Soil and Water Conservation Engineering* (4th ed.). John Wiley & Sons.
4. Heathcote, I. W. (2009). *Integrated Watershed Management: Principles and Practice*. John Wiley & Sons.
5. Kakde, B. K. (2004). *Watershed Manual – A Guide for Watershed Development Practitioners and Trainers*. BAIF Development Research Foundation, Pune.
6. Katyal, J. C., Singh, R. P., Sharma, S., Das, S. K., Padmanabhan, M. V., & Mishra, P. K. (1995). *Field Manual on Watershed Management*. CRIDA, Hyderabad.
7. Lyon, J. G. (2002). *GIS for Water Resources and Watershed Management*. CRC Press.
8. Mahnot, S. C. (2014). *Soil and Water Conservation and Watershed Management*. International Books and Periodicals Supply Service, New Delhi.
9. McCool, D. K., & Lee, R. G. (Eds.). (2017). *Watershed Management: Balancing Sustainability and Environmental Change*. CRC Press.
10. Naiman, R. J. (Ed.). (2012). *Watershed Management: Balancing Sustainability and Environmental Change*. Springer Science & Business Media.
11. Novotny, V., Ahern, J., & Brown, P. (2010). *Water Centric Sustainable Communities: Planning, Retrofitting, and Building the Next Urban Environment*. John Wiley & Sons.
12. Rajora, R. *Integrated Watershed Management: A Field Manual for Equitable, Productive, and Sustainable Development*. Rawat Publications, Jaipur.
13. Sabatier, P. A., Focht, W., Lubell, M., Trachtenberg, Z., Vedlitz, A., & Matlock, M. (2005). *Collaborative Approaches to Watershed Management*.
14. Schwab, G. O., Fangmeier, D. D., Elliot, W. J., & Frevert, R. K. (1993). *Soil and Water Conservation Engineering* (4th ed.). John Wiley & Sons.
15. Sharda, V. N., Sikka, A. K., & Juyal, G. P. (2006). *Participatory Integrated Watershed Management: A Field Manual*. Central Soil and Water Conservation Research and Training Institute, Dehradun.
16. Singh, G. D., & Poonia, T. C. (2003). *Fundamentals of Watershed Management Technology*. Yash Publishing House, Bikaner.
17. Singh, R. V. (2003). *Watershed Planning and Management* (2nd ed.). Yash Publishing House, Bikaner.
18. Suresh, R. (2006). *Soil and Watershed Conservation Engineering* (2nd ed.). Standard Publication Distributors, Delhi.

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T. Y. B. A. Geography (Major Elective)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU5202
Title of the Course: Cultural Geography

Credits:04
60

Total Lectures:

Exam scheme: CIE-40 Marks

ESE-60 Marks

Course Objectives:

1. Introduce students to the fundamental concepts, nature, and scope of Cultural Geography.
2. Explore the elements and components of culture, along with convergence and divergence processes.
3. Develop an understanding of cultural perception, behavioralism, and cultural relativism.
4. Analyze cultural diversity based on race, ethnicity, religion, and language.
5. Examine cultural regions, cultural hearths, and their role in shaping global cultural landscapes.
6. Study the relationship between cultural landscapes and cultural ecology, including the diffusion of cultural traits.
7. Understand the significance of cultural space in political and social contexts.

	Semester – V	Lectures
Unit 1	Introduction	12
	A. Definition, nature and scope of Cultural Geography B. Elements and components C. Convergence and divergence processes, D. Cultural perception, Behaviouralism and cultural relativism	
Unit 2	Concepts and regions	17
	A. Bases of cultural diversity – i. Race, ii. Ethnicity iii. Religion iv. Language. B. Cultural hearth, realms and cultural regions of the world. C. Cultural diversity	
Unit 3	Cultural Landscape and ecology	17
	A. Cultural landscape and cultural ecology in Geography B. Diffusion of cultural traits in the world	
Unit 4	Cultural Space and Politics	14
	A. Creation of Cultural Spaces: i. Body	

	ii. Home iii. City iv. Nation v. Globe B. Politics of Difference: i. Caste, ii. Class, iii. Gender iv. Sexuality	
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Course Outcomes:

Students will be able to:

1. Define and explain the scope and significance of Cultural Geography.
2. Identify and analyze the key elements and components of culture.
3. Evaluate the processes of cultural convergence, divergence, and diffusion.
4. Understand cultural diversity and its bases, including race, ethnicity, religion, and language.
5. Interpret the concept of cultural hearths, realms, and regions on a global scale.
6. Analyze cultural landscapes and their interaction with ecological and geographical factors.
7. Assess the role of cultural space in political, social, and economic contexts.

References:

1. Blunt, A. (2005). Cultural geography: Cultural geographies of home. *Progress in Human Geography*, 29(4), 505–515.
2. Cavallaro, D. (2001). *Critical and cultural theory: Thematic variations*. Athlone Press.
3. Cosgrove, D. (1984). *Social formation and symbolic landscape*. Croom Helm.
4. Cosgrove, D., & Daniels, S. (Eds.). (1988). *The iconography of landscape: Essays on the symbolic representation, design and use of past environments*. Cambridge University Press.
5. Duncan, J. S. (2005). *The city as text: The politics of landscape interpretation in the Kandy Kingdom*. Cambridge University Press.
6. Hirsch, E., & Hanlon, M. (2003). *The anthropology of landscape: Perspectives on space and place*. Clarendon Press.

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T.Y.B.A. Geography (Minor)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU5301
Title of the Course: Political Geography

Credits: 04
60

Total Lectures:

Examination Scheme: CIA: 40 Marks
Marks

End-Sem : 60

Course Objectives:

1. To study the basic concepts of Political Geography.
2. To provide students with an understanding of the territorial bases of the state and role of geographic factors in shaping political history.
3. To study the global geostrategic issues.
4. To reveal the unity of political activity and of geographical factors of social development.

	Semester – V	Lectures
Unit 1	Introduction to Political Geography	8
	D. Definition E. Nature and Scope F. Approaches	
Unit 2	Concepts in Political Geography	15
	F. Concept of Territory: Territoriality and Territorial Symbols G. Concept of State, Nation and Nation-State H. Nationalism, Sovereignty, Organic State & Geopolitics I. Spatial factors of State: Location, Size and Shape	
Unit 3	Frontiers and Boundaries	17
	C. Concept & Types of Frontiers D. Concept of Boundary E. Stages of Boundary formation process: Discussion, Delimitation & Demarcation F. Types of Boundary G. Border Conflict: Indo-Pak and Sino-Indian H. Global Strategic Views : Heartland & Rimland Theory	
Unit 4	Political Geography of Resource Conflicts	10
	C. Water sharing disputes in India D. Disputes related to Minerals	
Unit 5	Electoral Geography	10

	A. Political Parties in India: National & Regional B. Geography of Voting, Geographical Influences on Voting Pattern C. Geography of Representation and Gerrymandering	
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Course Outcomes:

Student will able to

1. Understand the basic concepts in political geography.
2. Analyze the boundary formation process and border related conflicts.
3. Familiarized with theoretical aspect of global geostrategic views.
4. Asses the process of evolution of constituencies and politico electoral regions of India.
5. Design the solutions to the global geostrategic issues.

Reference:

1. Adhikari, S. (1997). *Political geography*. Rawat Publications.
2. Bandhopadhyaya, J. (1991). *The making of India's foreign policy*. Allied Publishers.
3. Cox, K. (2002). *Political geography: Territory, state and society*. Wiley-Blackwell.
4. Dikshit, R. D. (1994). *Political geography*. Tata McGraw Hill.
5. Flint, C. (2006). *Introduction to geopolitics*. Routledge – Taylor & Francis Group.
6. Glassner, M. L., De Blij, H. J., & Yacher, L. (1980). *Systematic political geography*. John Wiley.
7. John, R. S. (2002). *An introduction to political geography*. Taylor & Francis.
8. Weiner, M., & Osgoodfield, J. (Eds.). (1975). *Electoral politics in the Indian states*. Centre for International Studies, MIT.

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T.Y.B.A. Geography (VSC)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU5501

Title of the Course -Lab Course on Cartographic Techniques

Credits: 02

Exam scheme: CIE-20 Marks

Total Practicals: 15

ESE-30 Marks

Course Objectives:

1. Introduce students to the fundamentals of cartography, including traditional and modern mapping techniques.
2. Provide an understanding of map scales, including comparative and diagonal scales.
3. Develop skills in creating two-dimensional and three-dimensional cartographic diagrams.
4. Teach students the construction and interpretation of flow maps and isoline maps.
5. Enhance practical skills in visualizing spatial data using cartographic methods.

	Semester – V	Practicals
Unit 1	Cartographic Techniques 1 : Map scale	05
	A. Cartography: Definition, traditional and modern cartography, uses B. Map scale : Comparative and Diagonal Scale	
Unit 2	Cartographic Techniques 2 : Diagrams and map	10
	A. Two Dimensional Diagram : i. Circle Diagram ii. Square Diagram B. Three Dimensional Diagram : i. Cube Diagram ii. Sphere Diagram C. Maps : i. Flow map ii. Isoline map	

Course Outcomes:

Students will be able to: -

1. Define and explain cartography, its evolution, and its applications in modern geography.
2. Utilize different types of map scales, including comparative and diagonal scales, in geographical representations.
3. Construct two-dimensional diagrams such as circle and square diagrams for spatial data visualization.
4. Develop three-dimensional diagrams, including cube and sphere diagrams, for cartographic representation.
5. Create and interpret flow maps and isoline maps for representing spatial patterns and geographic trends.

References:

1. Sharma, J. P. (2010). *Prayogic Bhugol*. Rastogi Publishers.
2. Singh, R. L., & Singh, R. P. B. (1999). *Elements of Practical Geography*. Kalyani Publishers.
3. Slocum, T. A., McMaster, R. B., & Kessler, F. C. (2008). *Thematic Cartography and Geovisualization* (3rd ed.). Prentice Hall.
4. Tyner, J. A. (2010). *Principles of Map Design*. The Guilford Press.
5. Sarkar, A. (2015). *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd.
6. Singh, R. L., & Dutta, P. K. (2012). *Prayogatama Bhugol*. Central Book Depot.
7. Ahirrao, Y., & Karanjkehele, E. K. (2002). *Practical Geography*. Sudarshan Publication.
8. Saptarshi, P. G., & Jog, S. R. (n.d.). *Statistical Methods*.
9. Karlekar, S. N. (2008). *Statistical Methods*. Diamond Publication.
10. Kanetkar, T. P., & Kulkarni, S. V. (1986). *Surveying and Leveling*. Pune Vidyarthi Griha Publication.
11. Kumbhare, A. (n.d.). *Practical Geography*.
12. Saha, P., & Basu, P. (2007). *Advanced Practical Geography*. Books and Allied (P) Ltd.

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T. Y.B.A. Geography (Major)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU6101
Title of the Course: Geography of India-II

Credits: 04
60

Total Lectures:

Examination Scheme: CIA: 40 Marks

End-Sem : 60 Marks

Course Objectives:

1. To acquaint the students with geographical extent of India and the dynamics of India's relations with the world.
2. To help students understand the physiographic features of India.
3. To make students familiar with the intricate network of drainage system in India.
4. To help students understand the different types of soil and forests in India and its distribution.

	Semester – VI	Lectures
Unit 1	Agriculture	10
	G. Significance of Agriculture in Indian Economy H. Types of Farming I. Major Crops : Rice, Sugarcane J. Green Revolution, White Revolution and Blue Revolution	
Unit2	Mineral and Energy Resources	11
	J. Mineral Resources & its distribution: Iron ore, Manganese, Bauxite, K. Energy Resources: i. Major conventional resources & its distribution – Coal, crude oil. ii. Non-conventional –Hydroelectricity, Solar energy, Nuclear energy.	
Unit3	Industries	10
	I. Iron & Steel Industry J. Sugar Industry K. Industrial Regions of India: Major and Minor	
Unit 4	Population	07
	E. Growth, distribution and density F. Population composition i. Religious ii. Linguistic	
Unit 5	Experimental Learning	2

	E. Discussion on Field Work/ Self Study: Study Tour: 3-15 days across India	
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Course Outcomes:

Students will be able to:

1. Understand the significance of agriculture in India economy.
2. Get acquainted with the major of India and different agricultural revolutions.
3. Analyze the distribution of different mineral and energy resource deposits in India.
4. Assess the role of of non-conventional energy in sustainable development.
5. Familiarized with the major and minor industrial regions of India.
6. Understand the ethnic, religious, caste and linguistic composition of the country.

References:

1. Bandhopadhyaya, J. (1991). *The making of India's foreign policy*. Allied Publishers.
2. Dutta, R., & Sundaram, K. P. M. (2002). *Indian economy*. S. Chand Publications.
3. Khullar, D. R. (2011). *India: A comprehensive geography*. Kalyani Publishers.
4. Hussain, M. (2013). *Geography of India*. Tata McGraw Hill.
5. Sharma, T. C., & Coutinho, O. (1998). *Economic and commercial geography of India*. Vikash Publication.
6. Singh, G. (2010). *A geography of India*. Atmaram and Sons.
7. Singh, R. L. (1971). *India: A regional geography*. National Geographical Society of India.
8. Spate, O. H. K. (1954). *A general and regional geography*. Methuen.
9. Tiwari, R. C. (2016). *Geography of India*. Pravalika Publication.

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Modern College of Arts, Science and Commerce (Autonomous), Shivajinagar, Pune 05
T.Y.B.A. Geography (Major)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU6102

Title of the Course: Lab Course on Techniques of Spatial Analysis

Credits: 04

Total Practicals: 30

Exam scheme: CIE-40 Marks

ESE-60 Marks

Course Objectives:

1. Introduce students to different types of geographical data, including spatial and temporal variations.
2. Develop a strong understanding of measures of central tendency and dispersion for both grouped and ungrouped data.
3. Equip students with the knowledge of correlation and regression analysis, including Pearson's and Spearman's methods.
4. Provide an understanding of hypothesis testing, including null and alternative hypotheses, significance levels, and degrees of freedom.
5. Introduce students to parametric and non-parametric tests, including the Chi-square and Student's t-test.
6. Enhance practical knowledge through field excursions and the preparation of a tour report.

	Semester – VI	Practicals
Unit 1	Introduction and Types of Geographical Data:	02
	A. Spatial and Temporal data B. Discrete and Continuous series C. Ungrouped and Grouped data	
Unit 2	Measures of Central Tendency and Dispersion	12
	A. Measures of Central Tendency :Mean, Mode, Median (two examples each from ungrouped and grouped data) B. Measures of Dispersion: Mean Deviation and Standard Deviation and variance (two examples each from ungrouped and grouped data)	
Unit 3	Correlation and Regression	14
	A. Meaning of Correlation and Regression B. Meaning of bivariate correlation and Regression, C. Meaning of coefficient of correlation i. Calculation of Pearson's Product-Method Correlation Co-efficient (Two examples) ii. Calculation of Spearman Rank order (Two examples) D. Hypothesis :-Meaning, Definition , Types of Hypothesis: Null and Alternative hypothesis, Level of significance, Degrees of freedom in Hypothesis E. Parametric and Non parametric test: i. Chi-square test (one sample case only) ii. Student-'s test (Comparison of sample means)	

Unit 4	Field Excursion	02
	A. One Short/One Long study tour anywhere in country (for 3 to 15 days) and preparation of tour report	

Course Outcomes:

Students will be able to:

1. Classify and analyze different types of geographical data, distinguishing between spatial and temporal, discrete and continuous, and grouped and ungrouped data.
2. Calculate and interpret measures of central tendency (mean, median, and mode) and dispersion (mean deviation, standard deviation, and variance).
3. Understand and apply correlation and regression techniques to analyze relationships between variables.
4. Compute Pearson's Product-Moment Correlation Coefficient and Spearman Rank Order Coefficient.
5. Formulate and test hypotheses using statistical methods, including the Chi-square and Student's t-test.
6. Apply field study techniques through excursions and prepare comprehensive reports based on observations and data collection.

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T.Y.B.A. Geography (Major)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU6103
Title of the Course: Climatology

Credits: 02

Examination Scheme: CIA: 20 Marks
Marks

Total Lectures: 30
End-Sem : 30

Course Objectives:

1. To study the basic concepts in Climatology.
2. To introduce structure and composition of atmosphere.
3. To learn the application of Climatology in different areas and environment.
4. To understand the dynamic nature of the Earth's atmosphere, various processes, and associated phenomena.

	Semester – VI	Lectures
Unit 1	Introduction	05
	K. Nature and Scope L. Concept of Weather and Climate M. Applied Climatology	
Unit 2	Earth's Atmosphere	08
	L. Evolution of Atmosphere M. Structure and Composition of Atmosphere N. Ionosphere and Ozone issue	
Unit 3	Insolation	08
	L. Mechanisms of Heat transfer – Conduction, Convection and Radiation M. Heat Budget of the Earth N. Factors affecting horizontal distribution of temperature O. Vertical distribution of temperature – Lapse Rate and Inversion of Temperature	
Unit 4	Atmospheric Pressure and Wind System	09
	G. Pressure measurement and distribution H. Pressure Belts I. Vertical and horizontal distribution of pressure J. Factors affecting Wind K. Types of Winds: Planetary, Seasonal, Local Winds, etc.	

Course Outcomes:

Students will be able to:

1. Define the field of Climatology and its essential principles.
2. Distinguish between Weather and climate and familiarize themselves with the applicability of climatological knowledge.
3. Understand the functioning of atmospheric systems in real time and analyze the mechanisms that control these processes.
4. Critically analyze the role of ionosphere and ozonosphere for the survival of life on earth.
5. Perceive the mechanism of heat transfer and factors affecting horizontal and vertical distribution of temperature.
6. Analyze the role of atmospheric pressure belts and the pattern of wind movement.
7. Illustrate and explain the air pressure system, wind regulating forces and the formation of the atmospheric disturbance.

References:

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T. Y. B. A. Geography (Major Electives)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU6201

Title of the Course: Watershed Management - II

Credits: -04

Examination Scheme: CIA: 40Marks

Total Lectures: 60

End-Sem: 60Marks

Course Objectives:

1. To familiarize students with resource appraisal and watershed planning
2. To impart practical knowledge of water and soil conservation techniques
3. To provide insights into watershed development programs and case studies

	Semester – VI	Lectures
Unit 1	Resource Appraisal of Watershed	10
	A. Land Capability Classification: Criteria, Methods & Need B. Natural Resource Assessment and development C. Methods of Resource Appraisal: -Survey, Database Generation, Resource Mapping	
Unit 2	Watershed Planning	10
	A. Definition and scope of watershed planning B. Importance of Watershed planning, C. Need of planning for small rain -fed catchments,	
Unit 3	Water and soil conservation measures	20
	A. Water Conservation Methods- Nala bund, water harvesting techniques, storage of harvested water, traditional methods in India. B. Soil conservation Methods- contour bunding, gully plugging, trench cum mound, leveling, check dams	
Unit 4	Watershed Development Programmes	20
	A. Rural and integrated watershed development plan in India, B. Watershed based farming system, crop-production, dryland farming, livestock production. C. Case Study/ Field Visit: Ralegan Siddhi / Hiware Bajar – Effective Watershed Management	

Course Outcomes:

Students will be able to:

1. Understand Watershed Resources Effectively by assessing various methods of resource appraisal, including surveys, database generation, and resource mapping.
2. Develop an Understanding of Watershed Planning and the need for planning in small rain-fed catchments for sustainable development.
3. Identify and apply Water and Soil Conservation Techniques and measures
4. Analyse and Implement Watershed Development Programs
5. Examine rural and integrated watershed development planning strategies.
6. Evaluate the role of watershed-based farming systems in sustainable agriculture, including crop production, dryland farming, livestock production, and energy plantations.

7. Gain practical insights through case studies or field visits to successful watershed management projects like Ralegan Siddhi or Hiware Bazar.

References:

1. Brosius, J. P., Lovelace, G., & Martini, F. (2005). *Disciplines and Interdisciplinary Practices: The Case of Watershed Management*. *Society & Natural Resources*, 18(3), 199-212.
2. Dhruvanarayana, V. V., Sastry, G., & Patnaik, U. S. *Watershed Management*.
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T.Y.B.A. Geography (Major Elective)

(2023 Course under NEP 2020)

Course Code: 23ArGeoU6202

Title of the Course: Geography of Thought

Credits: 04

Exam scheme: CIE-40 Marks

Total Lectures: 60

ESE-60 Marks

Course Objectives:

1. This course aims to provide knowledge of disciplinary developments post 1970.
2. It aims to enable students to contextualize the conceptual traditions within geography along with the major philosophical influences.
3. It promotes an understanding of the fluidity, expansion and inclusivity of Modern Geographical Thought as against imperial underpinnings and latent Eurocentricity.

	Semester – VI	Lectures
Unit 1	Historical Development of Geographical Thought	20
	1. Ancient period a. Schools of thought: Greek, Roman, Arab and Indian b. Contributions of Herodotus, Eratosthenes, Strabo, Ptolemy 2. Medieval period: a. Dark age and contribution of Arab geographer b. Age of discovery 3. Modern period a. Schools of thought: German, British, French and American b. Contributions of Kant, Humboldt, Ritter, and W. M. Davis	
Unit 2	Dualism in Geography	10
	1. Determinism and Possibilism 2. Systematic versus Regional Geography 3. Physical versus Human Geography	
Unit 3	Recent Trends in Geography	15
	1. Field survey process studies and experimental studies. 2. Quantification and application of statistical techniques in Geography. 3. Computer based Cartography, Remote Sensing, GIS and Geo-informatics.	
Unit 4	Modern theme in Geography	15
	1. Positivism, Functionalism, Existentialism, Idealism, Realism, Marxism. 2. Applied geography, Sustainable Development and Globalization	

Course Outcomes:

Students will be able to:

1. Understand the geographical thinking in different regions of world.
2. Distinguish paradigms and post modern concepts in geography.

3. A thorough knowledge of the growth, development, philosophical influences and relevance of geography from 1970 to the present time.
4. Knowledge of emerging areas and new theorizations within the discipline.
5. An appreciation of the discipline's dynamic and inclusive nature.

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T.Y.B.A. Geography (Minor)
(2023 Course under NEP 2020)
Course Code: 23ArGeoU6301
Title of the Course: Urban Geography

Credits: 04

Exam scheme: CIE-40 Marks

Total Lectures : 60

ESE-60 Marks

Course Objectives:

1. To introduce the students with concepts and approach to studying the urban geography.
2. To study with patterns and functional attributes of urban places.
3. To analyze the urban contemporary issues focusing on Indian mega cities.

	Semester – VI	Lectures
Unit 1	Introduction	08
	A. Meaning , Definition , Nature and scope of Urban Geography B. Urban Geography Significance of Urban Geography C. Relation to other disciplines	
Unit 2	Urbanization	12
	A. Meaning of Urban settlement and urbanization B. Spatial- temporal variations in urbanization C. Factors affecting on urbanization	
Unit 3	Urban Morphology	13
	A. Models of urban structure: i. Park and Burgess Model ii. Harris and Ullman Model iii. CBD : Characteristics and demarcation B. Urban Classification: classification of towns and cities	
Unit 4	Urban Demography	12
	Characteristics of urban population with reference to Maharashtra A. Growth of Urban population B. Density of population C. Age D. Sex E. Occupational structure	
Unit 5	Contemporary Issues	15
	A. Horizontal growth of cities: Price of land B. Growth of slums C. Urban Environmental pollution D. Urban floods, health and hygiene E. Need of city plan and Use of GIS in Urban Planning	

Course Outcomes:

Student will able to

1. Understand the fundamentals and patterns of urbanization process
2. Learn the functional classification of cities.
3. To analysis of modern urban structure.
4. Understand the urban demography of Maharashtra.
5. Know contemporary issues.

References:

1. Chamola, S. D. and Bharati Anirudh, "Agriculture and Rural Development in India", Global Vision Publishing House.
2. Desai V. (1991): "Fundamentals of Rural Development", New Delhi: Rawat Publications
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