Anekant Education Society's

Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati

(Empowered Autonomous)

Four Year B.A. Degree Program in Geography

(Faculty of Science &Technology)

CBCS Syllabus

SYBA (Geography) Semester IV

For Department of Geography

Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati

Choice Based Credit System Syllabus (2024 Pattern)

(As Per NEP 2020)

To be implemented from Academic Year 2025-2026

Preamble

AES's Tuljaram Chaturchand College has made the decision to change the syllabus of across various faculties from June, 2024 by incorporating the guidelines and provisions outlined in the National Education Policy (NEP), 2020. The NEP envisions making education more holistic and effective and to lay emphasis on the integration of general (academic) education, vocational education and experiential learning. The NEP introduces holistic and multidisciplinary education that would help to develop intellectual, scientific, social, physical, emotional, ethical and moral capacities of the students. The NEP 2020 envisages flexible curricular structures and learning based outcome approach for the development of the students. By establishing a nationally accepted and internationally comparable credit structure and courses framework, the NEP 2020 aims to promote educational excellence, facilitate seamless academic mobility, and enhance the global competitiveness of Indian students. It fosters a system where educational achievements can be recognized and valued not only within the country but also in the international arena, expanding opportunities and opening doors for students to pursue their aspirations on a global scale.

In response to the rapid advancements in science and technology and the evolving approaches in various domains of Geography and related subjects, the Board of Studies in Geography at Tuljaram Chaturchand College, Baramati - Pune, has developed the curriculum for the Geography, which goes beyond traditional academic boundaries. The syllabus is aligned with the NEP 2020 guidelines to ensure that students receive an education that prepares them for the challenges and opportunities of the 21st century. This syllabus has been designed under the framework of the Choice Based Credit System (CBCS), taking into consideration the guidelines set forth by the National Education Policy (NEP) 2020, LOCF (UGC), NCrF, NHEQF, Prof. R.D. Kulkarni's Report, Government of Maharashtra's General Resolution dated 20th April and 16th May 2023, and the Circular issued by SPPU, Pune on 31st May 2023.

A Geography degree equips students with the knowledge and skills necessary for a diverse range of fulfilling career paths. Graduates in Geography find opportunities in various fields, including urban planning, GIS analysis, disaster preparedness, teaching, environmental science, remote sensing analysis, transportation planning, demography, hydrology, and many other domains. Throughout their three-year degree program, students explore the spatial organization of both natural and human phenomena across different scales, from local to global. They learn to identify and analyze features on the Earth's surface, understand their

spatial patterns, and compare similarities and differences between different places. The curriculum also delves into the intricate relationship between humans and the environment, examining how physical and cultural landscapes evolve over time. Students specializing in physical geography gain an understanding of the processes that shape Earth's climate, create landforms, and influence the distribution of plant and animal life. By acquiring these comprehensive skills and knowledge, graduates are well-prepared to embark on rewarding careers that contribute to a better understanding of our world and address the challenges of our ever-changing planet.

Overall, revising the geography syllabus in accordance with the NEP 2020 ensures that students receive an education that is relevant, comprehensive, and prepares them to navigate the dynamic and interconnected world of today. It equips them with the knowledge, skills, and competencies needed to contribute meaningfully to society and pursue their academic and professional goals in a rapidly changing global landscape.

Programme Specific Outcomes POS

1. Ability of Problem Analysis: Student will be able to analyse the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.
2. Conduct Social Survey Project: They will be eligible for conducting social survey project, which is necessity for the assessment of development status of a particular group or section of the society.
3. Individual and Teamwork: Works effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
4. Application of Modern Instruments: Students will be able to apply various modern instruments for data collection and field survey.
5. Application of GIS and Modern Geographical Map Making Techniques: Students will learn how to prepare map based on GIS by using the modern geographical map-making techniques.
6. Critical Thinking: Students will be able to understand and solve the critical problems of physical and cultural environment.
7. Development of Observation Power: As a student of Geography, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.
8. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction.
9. Effective Citizenship: Demonstrate empathetic social concern and equity-centre national development and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
10. Enhancement of the Ability of Management: Demonstrate knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
11. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions and accept responsibility for them.
12. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts and demonstrate the knowledge of need for sustainable development.
13. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes.
14. Presentation Skill: Students are being able to understand and write effective reports and design credentials, make effective demonstrations, give and receive clear instruction.

Anekant Education Society's

Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati

(Empowered Autonomous)

Board of Studies (BOS)in Geography

2025-26

Sr. No.	Name of Member	Designation
1.	**Dr. Arun S. Magar,** Head & Associate Professor, Department of Geography, T. C. College, Baramati.	Chairman
2.	**Dr. Asaram S. Jadhav** Associate Professor, Department of Geography, T. C. College, Baramati	Internal Member
3.	**Mr. Vinayak D. Chavan** Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
4.	**Ms. Sayali Pawar** Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
5.	**Ms. Priyanka Pawar** Assistant Professor, Department of Geography, T. C. College, Baramati	Internal Member
6.	**Dr. Savita Kulkarni** Head & Associate Professor, Department of Geography, Annasaheb Magar College, Hadapsar, Pune	Vice-Chancellor Nominee, Subject Expert, SPPU Pune
7.	**Dr. Tukaram P. Shinde** Head & Associate Professor, Department of Geography, Mudhoji College, Phaltan	Subject Expert from Outside the Parent University
8.	**Dr. Prashant Patil** Associate Professor, Department of Geography, Shivaji University, Kolhapur	Subject Expert from Outside the Parent University
9.	**Dr. Shrikant Gabale** Managing Director, Graphias Solutions Pvt. Ltd., Pune	Representative from Corporate Sector
10.	**Ms. Akshata Raje**, GIS Expert	Member of the College Alumni
11.	**Ms. Pranita Kale,** Class: TYBA	UG Student
12.	**Ms. Rucha Tilekar**, Class: M.A./M.Sc. -II	PG Student

Credit Distribution Structure for S.Y.B.A.-2025-2026 (Geography)

Level	Semes	Major		Minor	OE	VSC, SEC, (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr/Sem	Degree/ Cum.Cr.
		Mandatory	**Electives**							
5.0	III	**GEO-201-MRM** Fundamentals of Geomorphology [2T] **GEO-202-MRM** Fundamentals of Oceanography [2T] **GEO-203-MRM** Practical in Scale & Projection [2 P]	--	**GEO-206-MN** Geography of India [2 T] **GEO-207-MN** Cartographic Techniques for data representation [2 P]	**GEO-208-OE** Disaster Management [2 T]	**GEO-204-VSC** Fundamentals of Remote Sensing [2 T]	**AEC** MAR/HIN/SAN-210-AEC [2 T] **GEO-209-IKS** Indian Geographical Thoughts	**GEO-205-FP** (2 P) **CC** (Yoga/PES /CUL/NSS/ NCC-211-CC [2 T]	22	UG 44 credits
5.0	IV	**GEO-251-MRM** Fundamentals of Population Geography [2T] **GEO-252-MRM** Fundamentals of Settlement Geography [2T] **GEO-253-MRM** Statistical Techniques in Geography [2P]	--	**GEO-256-MN** Geography of Maharashtra [2T] **GEO-257-MN** Land Measurement [2 P]	**GEO-258-OE** Practical in Disaster Management [2 P]	**GEO-254-VSC** Practical in Remote Sensing [2P] **GEO-259-SEC** Practical in Computer Cartography [2 P]	**AEC** MAR/HIN/SAN-260-AEC [2 T]	**CC** (Yoga/PES /CUL/NSS/ NCC [2 T] **GEO-255-CEP** Community Engagement Project (2P)	22	

F.Y.B.A. Geography

NEP-2.0

Course Structure for F.Y.B.A. Geography (2024 Pattern)

Sem	Course Type	Course Code	Course Title	Theory / Practical	Credits
I	DSC-I (General)	-101-GEN	-------	Theory	04
	DSC-II (General)	-101-GEN	-------	Theory	04
	DSC-III (General)	GEO-101-GEN	Physical Geography	Theory	02
		GEO-102-GEN	Practical in Physical Geography	Practical	02
	Open Elective (OE)	GEO-103-OE	Tourism Geography	Theory	02
	Skill Enhancement Course (SEC)	GEO-104-SEC	Fundamentals of Google Map	Theory	02
	Ability Enhancement Course (AEC)	ENG-104-AEC	-----	Theory	02
	Value Education Course (VEC)	GEO-105-VEC	Environment Education	Theory	02
	Generic Indian Knowledge System (GIKS)	GEN-106-IKS	------	Theory	02
				Total Credits	**22**
II	DSC-I (General)	-151-GEN	-----	Theory	04
	DSC-II (General)	-151-GEN	-----	Theory	04
	DSC-III (General)	GEO-151-GEN	Human Geography	Theory	02
		GEO-152-GEN	Practical in Human Geography	Practical	02
	Open Elective (OE)	GEO-153-OE	Practical in Tourism Geography	Practical	02
	Skill Enhancement Course (SEC)	GEO-154-SEC	Practical in Google Earth	Practical	02
	Ability Enhancement Course (AEC)	ENG-154-AEC	----	Theory	02
	Value Education Course (VEC)	GEO-155-VEC	Environmental Awareness	Theory	02
	CC	YOG/PES/CUL/NSS/NCC-156-CC	To be selected from the CC Basket	Theory	02
				Total Credits	**22**
				Grand Total Sem I + Sem II	**44**

Course Structure for S.Y.B.A. Geography (2024 Pattern)

Sem.	Course Type	Course Code	Course Name	Theory/ Practical	Credits
III	Major Mandatory	GEO-201-MRM	Fundamentals of Geomorphology	Theory	02
	Major Mandatory	GEO-202-MRM	Fundamentals of Oceanography	Theory	02
	Major Mandatory	GEO-203-MRM	Practical in Scale & Projection	Practical	02
	Vocational Skill Course (VSC)	GEO-204-VSC	Fundamentals of Remote Sensing	Theory	02
	Field Project (FP)	GEO-205-FP	Field Project	Practical	02
	Minor (MN)	GEO-206-MN	Geography of India	Theory	02
	Minor (MN)	GEO-207-MN	Cartographic Techniques for data representation	Practical	02
	Open Elective (OE)	GEO-208-OE	Disaster Management	Theory	02
	Generic IKS	GEO-209-IKS	Indian Geographical Thoughts	Theory	02
	Ability Enhancement Course (AEC)	MAR-210-AEC		Theory	02
		HIN-210-AEC			
		SAN-210-AEC			
	Co-curricular Course (CC)	YOG/PES/CUL/NSS/NCC-211-CC	To be selected from the Basket	Theory	02
	Total Credits Sem-I				**22**
IV	Major Mandatory	GEO-251-MRM	Fundamentals of Population Geography	Theory	02
	Major Mandatory	GEO-252-MRM	Fundamentals of Settlement Geography	Theory	02
	Major Mandatory	GEO-253-MRM	Practical in Statistical Techniques	Practical	02
	Vocational Skill Course (VSC)	GEO-254-VSC	Practical in Remote Sensing	Practical	02
	Community Engagement Project (CEP)	GEO-255-CEP	Community Engagement Project	Practical	02
	Minor	GEO-256-MN	Geography of Maharashtra	Theory	02
	Minor	GEO-257-MN	Practical in Land Measurement Techniques	Practical	02
	Open Elective (OE)	GEO-258-OE	Practical in Disaster Management	Practical	02
	Skill Enhancement Course (SEC)	GEO-259-SEC	Practical in Computer Cartography	Practical	02
	Ability Enhancement Course (AEC)	MAR-260-AEC		Theory	02
		HIN-260-AEC			
		SAN-260-AEC			
	Co-curricular Course (CC)	YOG/PES/CUL/NSS/NCC-261-CC	To be selected from the Basket	Theory	02
	Total Credits				22
	Grand Total Sem III + Sem IV				**44**

Name of the Programme	**:** B.A. Geography
Programme Code	**:** UAGEO
Class	**:** S.Y.B.A.
Semester	**:**IV
Course Type	**:** Major Mandatory (Theory)
Course Code	**:** GEO-251-MRM
Course Title	**:** Fundamentals of Population Geography
No. of Credits	**:**02
No. of Teaching Hours	**:**30

Course Objectives:

1. To introduce students to the key concepts and definitions of population geography, enabling them to understand the basic principles that govern the study of populations.
2. To examine the various components of population growth, including fertility, mortality, migration, and nuptiality, and understand their roles in shaping population trends globally and in India.
3. To make the students aware of the need and importance of population.
4. To familiarize students with classical population theories such as Malthusian theory and Demographic Transition theory, and analyze their relevance to contemporary population issues.
5. To explore the patterns of population growth, distribution, and density in India, including the socio-economic and cultural factors that influence these patterns.
6. To investigate the various aspects of population structure, including age, sex ratio, religion, language, marital status, and literacy, with a focus on their characteristics and distribution in India.
7. To encourage critical thinking about population issues, including the implications of population growth on resources, development, and policy-making.

Course Outcomes:

After the completion of the course, students will be able to:

CO1: Clearly define key terms related to population and population geography, and explain their significance in the study of human populations.

CO2: Articulate the nature, scope, and importance of population geography, and how it differs from and relates to other geographical subfields.

CO3: Identify and critically evaluate various sources of population data, understanding their strengths and limitations for demographic analysis.

CO4: Analyze the components of population growth, including fertility, mortality, migration, and nuptiality, and assess their impact on population change over time and across regions.

CO5: Interpret and explain the spatial patterns of population growth, distribution, and density in India, and discuss the factors influencing these patterns.

CO6: Develop the ability to analyze and interpret demographic data, using appropriate methods to draw meaningful conclusions about population trends and issues.

CO7: Build a strong foundation in population geography that prepares students for advanced studies or careers in geography, demography, urban planning, and related fields.

Topics and Learning Points	Teaching Hours
Unit – 1: Introduction to Population Geography	**06**
1.1 Meaning and definition of Population and Population Geography	
1.2 Nature and Scope	
1.3 Sources of Population Data	
Unit – 2: Population Growth and Distribution	**12**
2.1 Concept of population growth	
2.2 Component of population growth (Fertility, Mortality, Migration and Nuptiality)	
2.3 Malthus Theory	
2.4 Demographic Transition theory	
2.5 Population growth and trend in India	
2.6 Population distribution and Density of India	
Unit – 3: Population Structure and Characteristics	**12**

3.1 Age structure in India

3.2 Sex Ratio: definition and affecting factors of sex ratio

3.3 Sex ration in India

3.4 Religious, Linguistics and Marital structure in India

3.5 Literacy: definition and measures of literacy

3.6 Literacy in India

Reference Books:

1. **Bhende, A. and Kanitkar, T. (2011):** Principles of Population Studies, Himalaya Publishing House, Bombay.
2. **Beaujeu, G. J. (1966):** Geography of Population, Longman Group Ltd.
3. **Chandna, R.C. (Rep.2010):** Geography of Population, Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.
4. **Clark, J. I. (1973):** Population Geography, Pergamon Press Ltd., Oxford.
5. **Clark, J.I. (1984):** Geography and Population: Approaches and Applications, Pergamon Press Ltd., Oxford.
6. **Musmade Arjun, Sonawane Amit and Jyotiram More**, (2015) Population & Settlement Geography (Marathi) -Diamond Publication Pune.
7. **Agarwala, S.N.** (1977): India's population Problems, Tata McGraw Hill publishing Co. Ltd. , New Delhi.
8. **Bose Ashis et.al.** (1974): Population in India's Development Vikas Publishing House, New Delhi, 1974.
9. **Chandna R.C.** (1986): Geography of Population concepts, Determinants and Patterns, Kalyani Publishers, New Delhi
10. **Crook Nigel**: Principles of Population and Development, Pergamon Press New York, 1997.
11. **Garnier B.J.** (1970): Geography of Population, Longman, London
12. **Pathak, K.B. and F.Ram,** (1992) : Techniques of Demographic analysis. Bombay: Himalaya Publishing house

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= low relation, 2= Moderate or partial relation, 3= Strong relation

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1	0	1	0	1	0	0
CO2	3	3	2	1	1	2	0	2	0	0
CO3	3	1	1	3	1	2	0	2	2	0
CO4	3	1	1	3	2	3	1	2	1	0
CO5	3	1	2	2	2	3	0	2	1	1
CO6	3	1	1	3	1	3	1	2	2	0
CO7	3	1	1	3	1	3	1	2	1	1

Justification of Mapping

PO1: Critical and Creative Thinking: CO1, CO2, CO3, CO4, CO5, CO6, CO7 Critical and creative thinking is central to defining key terms, analyzing population data, interpreting spatial patterns, and building a foundation in population geography.

PO2: Communication Skill: CO1, CO2, CO3, CO4, CO5, CO6, CO7 Communication skills are needed to articulate definitions, explain the scope of population geography, and present data and findings clearly.

PO3: Multicultural Competence: CO1, CO2, CO3, CO4, CO5 Multicultural competence is necessary for understanding and respecting diverse cultural perspectives in population geography.

PO4: Research Skills:CO3, CO4, CO5, CO6, CO7 Strong research skills are vital for evaluating population data, analyzing components of growth, interpreting spatial patterns, and conducting advanced studies in geography.

PO5: Environmental Awareness: CO2, CO3, CO4, CO5 Environmental awareness is crucial when considering the implications of population growth and distribution, especially in the context of sustainable development.

PO6: Problem-solving Abilities: CO3, CO4, CO5, CO6, CO7 Problem-solving abilities are essential for addressing population-related challenges and deriving meaningful conclusions from demographic data.

PO7: Collaboration and Teamwork: CO4, CO6, CO7 Collaboration is important for working effectively in research teams and group projects.

PO8: Value Inculcation: CO1, CO2, CO3, CO4, CO5, CO6, CO7 Value inculcation is related to ethical considerations in population studies and understanding the human impact on global issues.

PO9: Digital and Technological Skills: CO3, CO4, CO5, CO6, CO7 Digital and technological skills are increasingly important for analyzing population data and conducting spatial analysis.

PO10: Community Engagement and Service: CO5, CO7 Community engagement is linked to understanding and addressing population distribution and related societal issues.

CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-IV (2024 Pattern)

Name of the Programme : B.A. Geography

Programme Code : UAGEO

Class : S.Y.B.A.

Semester :IV

Course Type : Major Mandatory (Theory)

Course Code : GEO-252- MRM

Course Title : Fundamentals of Settlement Geography

No. of Credits :02

No. of Teaching Hours :30

Course Objectives:

1) To introduce the fundamental concepts, definitions, and scope of settlement geography, enabling students to distinguish between rural and urban settlements.
2) To examine the role of site and situation in the development and spatial organization of settlements, highlighting their importance in settlement hierarchy.
3) To explore the evolution of rural settlements, understanding the processes and factors that have shaped their development over time.
4) To analyze the factors influencing the location of rural settlements, including physical, socio-cultural, and economic aspects, with a focus on how these factors contribute to village naming conventions.
5) To study the evolution of urban settlements in India, including historical processes and contemporary trends in urbanization.
6) To classify and understand different types of urban centers, focusing on the functional classification of cities and their roles within the broader urbanization process in India.
7) To develop comparative analytical skills to assess the differences and similarities between rural and urban settlements, preparing students for advanced studies or careers in geography, urban planning, and related fields.

Course Outcomes:

After the completion of the course, students will be able to:

CO1: Define and explain key concepts in settlement geography, demonstrating a clear understanding of the nature and scope of the field.

CO2: Analyze the significance of site and situation in the spatial organization and hierarchy of settlements, and apply this knowledge to real-world examples.

CO3: Describe the evolution of rural settlements, identifying the key factors that have influenced their development and spatial distribution.

CO4: Evaluate the factors affecting the location of rural settlements, including physical and socio-cultural aspects, and explain how these factors influence village naming.

CO5: Explain the historical and contemporary processes driving the evolution of urban settlements in India, with a focus on urbanization trends.

CO6: Classify urban centers based on their functional roles within the urban system, and analyze the factors contributing to their classification.

CO7: Develop the ability to compare and contrast rural and urban settlements, drawing on theoretical knowledge and practical examples, and apply this understanding to future academic or professional pursuits in geography and related disciplines.

Topics and Learning Points	Teaching Hours
UNIT 1: Introduction to Settlement Geography	**10**
1.1 Definition and concept of settlement geography	
1.2 Nature and scope	
1.3 Site and situation aspect in settlement	
1.4 Settlement hierarchy	
UNIT2: Rural Settlement	**10**
2.1 Evolution of rural settlement	
2.2 Concept of rural settlement	
2.3 Factors affecting on location of rural settlement	
2.4 Village names based on physical and socio-cultural aspects	

UNIT 3: Urban Settlement **10**

3.1 Evolution of urban settlement

3.2 Concept of urban settlement

3.3 Classification of urban center and urbanization in India

3.4 Functional classification of cities

3.5 Rural-Urban Fringe area

Reference Books:

1. Alam, S.M. et. al. (1982): Settlement System of India Oxford and IBH Publication Co., New Delhi.
2. Chisholm M. (1967): Rural Settlement and Land use. John Wiley, New York.
3. Clout, H. D. (1977): Rural Geography, Pergamon, Oxford.
4. Doniel, P. and Hopkinson, M. (1986): The Geography of settlement Oliver & Byod, Edinb urgh.
5. Grover, N. (1985): Rural Settlement: A Cultural Geographical Analysis. Inter India Publication, Delhi.
6. Hudson, F.S. (1976): A Geography of Settlements, Macdonald and Evans, New York.
7. Ramchandran, H. (1985): Village clusters and Rural Development. Concept Publication, New Delhi.
8. Rao R. N. (1986): Strategy for Integrated Rural Development. B. R. Publication, Delhi.
9. Sen, L. K. (1972): Readings in Micro level Planning and Rural Growth Centers, National Institute of Community Development, Hyderabad.
10. Srinivas M. N. (1968): Village India, Asia Publication House, Bombay.
11. Wanmati S. (1983): Service Centers in Rural India, B. R. Publication Corporation, Delhi.
12. Musmade A H, Sonawane A E, More J C, (2015): Population & Settlement Geography, (Marathi), Diamond Publication, Pune
13. Bhattacharya: Urban Development in India, Shree publication
14. Brian, R.K. (1996): Landscape of Settlement Prehistory to present, Routledge, London
15. Careter (1972): Fourth edition: The study of Urban Geography, Arnold, London
16. Hall P. (1992): Urban and Regional Planning, Routedge, London
17. K. Siddharth and S. Mukherji: Cities, Urbanization and Urban Systems

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	2	1	1	0	0	0	0
CO2	3	2	1	2	2	2	1	0	0	0
CO3	3	2	1	2	2	2	1	0	0	0
CO4	3	2	1	3	2	3	1	0	0	0
CO5	3	2	1	2	3	3	1	0	0	0
CO6	3	2	1	3	2	2	1	0	0	0
CO7	3	2	2	2	1	2	2	2	0	0

Justification for CO-PO Mapping

PO1: Critical and Creative Thinking

The entire course is designed to foster critical thinking through the analysis of settlement geography concepts, the evaluation of site and situation factors, and the comparison of rural and urban settlements. CO1, CO2, CO3, CO4, CO5, CO6, and CO7 are heavily aligned with this PO, as they require students to think analytically and creatively about various settlement patterns and processes.

PO2: Communication Skill

Effective communication is integral to explaining key concepts, analyzing spatial organization, and discussing settlement evolution. CO1 to CO7 all involve tasks that require students to articulate their understanding clearly, both in writing and orally, aligning strongly with PO2.

PO3: Multicultural Competence

Understanding settlements involves an appreciation of diverse cultural contexts, especially when analyzing the socio-cultural factors influencing rural and urban development. CO1 to CO7 touch on these aspects, with a moderate emphasis on multicultural competence.

PO4: Research Skills

Research skills are essential for exploring settlement geography. CO1, CO2, CO3, CO4, CO5, CO6, and CO7 all require students to engage in research activities, including data collection, analysis, and interpretation, which is why they are strongly related to PO4.

PO5: Environmental Awareness

Environmental factors play a critical role in settlement location and development. CO2, CO3, CO4, CO5, and CO6 focus on how these factors influence both rural and urban settlements, making them relevant to PO5.

PO6: Problem-solving Abilities

Addressing challenges in settlement geography, such as urbanization and rural development, requires strong problem-solving skills. CO2, CO3, CO4, CO5, CO6, and CO7 involve identifying and analyzing problems related to settlement patterns, aligning well with PO6.

PO7: Collaboration and Teamwork

Many tasks in settlement geography, such as urban planning and rural development projects, require teamwork. CO2, CO3, CO4, CO5, CO6, and CO7 encourage collaboration and are therefore related to PO7.

PO8: Value inculcation

CO7 emphasizes the application of settlement geography knowledge in professional and academic contexts, which includes the inculcation of values such as ethical urban planning and sustainable development, aligning it with PO8.

CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-IV (2024 Pattern)

Name of the Programme : B.A. Geography

Code : UAGEO

Class : S.Y.B.A.

Semester : IV

Course Type : Major Mandatory (Practical)

Course Code : GEO-253- MRM

Course Title : Practical in Statistical Techniques

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

1. To understand Central Tendency and dispersion.
2. To develop the skills of data collection and interpretation.
3. To analyze and calculate inferential statistics.
4. To understand correlation of various geographic phenomena.
5. Students learn how to plan a small group field visit and work in small groups in the field
6. The goal to enhance the students learning experience with field visits and digital techniques.
7. The overall aim of the course is to provide an introduction to fundamental statistical methods used in Geography.

Course Outcomes:

After completion of this course, student will be able to:

CO1: Gain understanding of basic statistical techniques used in Geography.

CO2: Analyze and calculate central tendency techniques used in Geography.

CO3: Understand knowledge about analysis techniques used in research work.

CO4: Gain practical experience and awareness of some skills of field visits and data collection.

CO5: Develop skills by problem-solving, field and/or primary and secondary data collection, analysis and interpretation.

CO6: Develop communication and interactive skills through group work.

CO7: Enhance ability to work as part of a team.

Topics and Learning Points	Teaching Hours
Unit – 1: Introduction to statistical techniques in geography	**10**
1.1 Applications of statistical techniques in Geography	
1.2 Geographical data	
1.3 Types of statistics: descriptive and inferential statistics	
Unit – 2: Descriptive Statistics	**24**
2.1 Introduction to descriptive statistics	
2.2 Measures of central tendency: mean. mode and median	
2.3 Measures of dispersion: variance and standard deviation	
(Calculations of above parameters for ungrouped and grouped data)	
Unit – 3: Inferential statistics	**20**
3.1 Population and sample	
3.2 Hypothesis testing: null and alternative hypothesis	
3.3 The Chi-square test (One sample case)	
3.4 Student's 't' test (Two sample case)	
Unit – 4: Study tour or village/ city survey	**06**
A short tour of two days duration or a long tour of more than five days duration and preparation of study report	
OR	
A village/ city survey and preparation of report	

Reference:

1. Jadhav A. S. (2022): Statistical Techniques for Geography, Pritam Publication, Jalgaon
2. Singh Lehraj, (1973): Map Work and Practical Geography, Central Book Depot –Allahabad
3. D. Y. Ahirrao and E. K. Karanjkhele, (2002): Pratyakshik Bhugol, Sudarshan Publication, Nashik
4. Pijushkanti Saha & Partha Basu (2007): Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata.
5. Heywood, I., Cornelius, S. and Carver, S. (2011) An Introduction to Geographical Information Systems. Prentice Hall, Fourth Edition.
6. Asis Sarkar (2015): Practical Geography, A Systematic Approach, Orient Black Swan
7. David, E. (1989): Statistics for Geographers.
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9. Hammond, R. and McCullagh, P. (1978): Quantitative Techniques in Geography, Clarendon Press. Oxford, London.
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11. Liendsor, J. M. (1997): Techniques in Human Geography, Routledge.
12. Norcliffe, G.B. (1977): Inferential Statistics for Geographers, Hutchinson, London.
13. Rogerson, P.A. (2015): Statistical Methods for Geography, SAGE Publication, London.
14. Wheller, D., Shaw, G. and Barr, S. (2010): Statistical Techniques in Geographical Analysis, David Fulton, Routledge, New York.
15. Yeats, M. H. (1974): An Introduction to Quantitative Analysis in Human Geography.
16. http://studymaterial.unipune.ac.in:8080/jspui/handle/123456789/201

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	1	0	2	0	1	1	0	3	0
CO2	2	1	0	2	0	1	1	0	3	0
CO3	3	2	1	3	0	2	1	0	3	0
CO4	1	2	0	2	0	1	2	0	1	2
CO5	2	2	1	3	0	2	2	0	1	2
CO6	1	3	0	1	0	1	2	0	1	1
CO7	1	2	0	1	0	1	3	0	0	0

Justification for CO-PO Mapping

PO1: Critical and Creative Thinking: CO1 and CO2 involve understanding and applying statistical techniques, which require critical thinking to analyze and interpret data. CO3, CO5, and CO6 involve deeper analysis and problem-solving related to research and field data, which enhances critical and creative thinking.

PO2: Communication Skill: CO4, CO5, and CO6 emphasize communication skills, particularly in the context of presenting and discussing fieldwork, data collection, and analysis. Effective communication is essential for expressing findings and interacting in group settings.

PO4: Research Skills: CO1, CO2, CO3, and CO5 focus on statistical techniques, data analysis, and fieldwork, all of which are integral to developing strong research skills, including problem formulation, data collection, and analysis.

PO6: Problem-solving Abilities: CO3, CO4, and CO5 involve solving problems related to data analysis and fieldwork, which requires problem-solving abilities to address complex research and data collection challenges.

PO7: Collaboration and Teamwork: CO4, CO5, CO6, and CO7 emphasize group work, field visits, and teamwork, highlighting the importance of working effectively in teams and collaborating on projects.

PO9: Digital and Technological Skills: CO1, CO2, and CO3 involve the use of statistical techniques and software for data analysis, which directly relates to digital and technological skills.

PO10: Community Engagement and Service: CO4 and CO5 involve field visits and data collection, which can contribute to community engagement by applying geographic research to real-world contexts and improving local knowledge.

CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-IV (2024 Pattern)

Name of the Programme	**:** B.A. Geography
Programme Code	**:** UAGEO
Class	**:** S.Y.B.A.
Semester	**:** IV
Course Type	**:** Vocational Skill Course (Practical)
Course Code	**:** GEO-254-VSC
Course Title	**:** Practical in Remote Sensing
No. of Credits	**:**02
No. of Teaching Hours	**:**60

Course Objectives:

1. To Understand the fundamentals of aerial photography and its applications.
2. To Determine the scale of aerial photographs accurately.
3. To Learn techniques for calculating object height from aerial photographs.
4. To Develop the skills to interpret single vertical aerial photographs.
5. To Understand the concept of stereo pairs in aerial photography for 3D mapping.
6. To Explore IRS (Indian Remote Sensing) satellite systems, their formats, and data products.
7. To Learn about different IRS satellite image formats and their uses.

Course Outcomes:

By the completion of the course, students will be able to:

CO1. Explain the basics of aerial photography and identify its application areas.

CO2. Demonstrate the ability to calculate the scale of aerial photographs.

CO3. Determine object heights from aerial photographs using appropriate methods.

CO4. Proficiently interpret single vertical aerial photographs.

CO5. Develop skill in using stereo pair aerial photographs for creating maps

CO6. Gain thorough understanding of the IRS satellite data systems and formats used in remote sensing.

CO7. Identify and utilize various IRS satellite image formats for specific application

Topics and Learning Points	Teaching Hours
UNIT 1: IRS Satellite Data Systems and Formats	**20**
1.1 Determination of Scale of Aerial Photographs	
1.2 Determination of Object Height on Aerial Photographs	
1.3 Determination of Focal Length of Aerial Photographs	
UNIT 2: IRS Satellite Data Systems and Formats	**20**
2.1 Introduction to Reference Systems of IRS Satellites	
2.2 Data Products from IRS Satellites	
2.3 IRS Satellite Image Formats	
2.4 IRS Data Preprocessing Techniques	
UNIT 3: Interpretation of Satellite Images	**20**
3.1 Overview of Satellite Image Interpretation	
3.2 Interpretation of Land Cover and Land Use from Satellite Images	
3.3 Interpretation of Single Vertical Aerial Photographs	
3.4 Interpretation of Stereo pair of Aerial Photographs	

References:

1. **Colwell, R. N. (1983).** Manual of Remote Sensing. American Society of Photogrammetry.
2. **Campbell, J. B., & Wynne, R. H. (2011).** Introduction to Remote Sensing (5th ed.). Guilford Press.
3. **Richards, J. A. (2013).** Remote Sensing Digital Image Analysis (5th ed.). Springer.
4. **Sabins, F. F. (1997).** Remote Sensing: Principles and Interpretation (3rd ed.). W. H. Freeman and Company.
5. **Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015).** Remote Sensing and Image Interpretation (7th ed.). Wiley.
6. **Wolf, P. R., Dewitt, B. A., & Wilkinson, B. E. (2014).** Elements of Photogrammetry with Applications in GIS (4th ed.). McGraw-Hill Education.
7. **Atkinson, K. B. (1996).** Close Range Photogrammetry and Machine Vision. Whittles Publishing.
8. **Jensen, J. R. (2007).** Remote Sensing of the Environment: An Earth Resource Perspective (2nd ed.). Pearson.
9. **Kumar, P. S. (2011).** *IRS-1C:* India's Remote Sensing Satellite. ISRO.
10. **Richards, J. A. (2013).** Remote Sensing Digital Image Analysis (5th ed.). Springer.
11. **Campbell, J. B., & Wynne, R. H. (2011).** Introduction to Remote Sensing *(*5th ed.). Guilford Press.
12. **Mikhail, E. M., Bethel, J. S., & McGlone, J. C. (2001).** Introduction to Modern Photogrammetry. Wiley.
13. **McGlone, J. C. (2004).** Manual of Photogrammetry (5th ed.). American Society for Photogrammetry and Remote Sensing.
14. **Slama, C. C. (1980).** Manual of Photogrammetry (4th ed.). American Society for Photogrammetry and Remote Sensing.

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= Weak relation, 2= Moderate relation, 3= Strong relation

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	2	1	1	1	1	3	1
CO2	2	2	1	2	1	1	1	1	3	1
CO3	3	2	1	2	1	1	1	1	3	1
CO4	3	2	1	3	1	1	1	1	3	1
CO5	3	2	1	3	1	1	2	1	3	1
CO6	3	2	1	3	1	2	2	1	3	1
CO7	2	2	1	2	1	2	2	1	3	1

Justification

PO1: Critical and Creative Thinking: CO1, CO3, CO4, CO5, and CO6 are strongly linked to critical and creative thinking, as they require analyzing aerial and satellite data. CO2 and CO7 moderately involve critical thinking through technical tasks.

PO2: Communication Skill: All COs (CO1 - CO7) contribute moderately to communication skills by requiring students to explain complex concepts in aerial photography and satellite data.

PO3: Multicultural Competence: The connection is weak, as COs focus on technical skills rather than multicultural engagement.

PO4: Research Skills: CO1 to CO6 are strongly related to research skills, involving methodological analysis of aerial and satellite data. CO7 has a moderate connection, focusing on satellite data formats.

PO5: Environmental Awareness: The link is weak, as COs focus on technical skills rather than directly addressing environmental issues.

PO6: Problem-solving Abilities: CO1, CO4, CO5, and CO6 are strongly related to problem- solving in aerial and satellite data interpretation. CO2 and CO3 have a moderate link.

PO7: Collaboration and Teamwork: CO5, CO6, and CO7 moderately involve teamwork, particularly in mapping and satellite data tasks. The other COs emphasize individual skills.

PO8: Value Inculcation: The connection is weak, as the COs focus on technical skills without explicitly addressing broader ethical values.

PO9: Digital and Technological Skills: All COs (CO1 - CO7) are strongly related to digital and technological skills, involving software use for data analysis.

PO10: Community Engagement and Service: The connection is weak, as the COs are more focused on technical skills than

CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-IV (2024 Pattern)

Name of the Programme : B.A. Geography

Programme Code : UAGEO

Class : S.Y.B.A.

Semester : IV

Course Type : Community Engagement Project

Course Code : GEO-255-CEP

Course Title : Community Engagement Project (CEP)

No. of Credits :02

No. of Hours : 60

Course Objective:

1. To enable students to recognize and understand a variety of geographic issues and challenges affecting local and global communities.
2. To teach students how to use geographic tools and technologies, such as GIS (Geographic Information Systems), to analyze and address community issues.
3. To enhance students' skills in engaging with community members and stakeholders through effective communication and collaboration.
4. To develop students' ability to design and implement solutions to geographic problems, integrating both theoretical knowledge and practical applications.
5. To encourage students to work with professionals from other disciplines to address complex geographic issues within communities.
6. To instil an understanding of ethical considerations and responsibilities when conducting community-based research and projects.
7. To provide students with the opportunity to critically reflect on the impact of their work on communities and learn from their experiences to improve future practices.

Course Outcomes:

After completion of this project, students will able to:

CO1: Identify and articulate key geographic issues and challenges within a community, supported by evidence from their research.

CO2: Demonstrate proficiency in using geographic tools and technologies, such as GIS, to analyze spatial data and support community projects.

CO3: Show competence in engaging with community members and stakeholders, facilitating productive discussions and collaboration.

CO4: Design and implement innovative and practical solutions to geographic problems, demonstrating effective application of geographic concepts.

CO5: Work successfully with individuals from various disciplines, integrating diverse perspectives and expertise to address complex community issues.

CO6: Apply ethical practices in their community engagement efforts, ensuring respect for community members and adherence to ethical guidelines.

CO7: Provide a critical evaluation of their projects, reflecting on their effectiveness and impact on the community, and suggesting improvements for future endeavors.

Standard Operating Procedures (SOP) of the Course:

As per the guidelines of the National Education Policy (NEP) 2020, students enrolled in undergraduate programs are required to complete a two-credit Community Engagement Programme (CEP) as part of their coursework. This CEP must be completed in Semester IV (SYBA) to qualify for the award of the B.A. degree. To facilitate the implementation of this requirement, the Board of Studies (BOS) has developed the following Standard Operating Procedure (SOP).

1. Preparation of SOP and Course Material

The Board of Studies (BOS) is responsible for the preparation of the Standard Operating Procedure (SOP), the structure of the CEP, and the associated coursework curriculum to ensure alignment with the NEP 2020 objectives.

2. Notification to Students

The department will issue an official notification to all eligible students informing them about the commencement of the Community Engagement Programme coursework and the related procedures.

3. Conducting Coursework

The department will conduct mandatory coursework sessions to equip students with the necessary knowledge and skills required for effectively undertaking the CEP, including research methodologies, fieldwork, and community engagement practices.

4. Application for Guide Allocation

Students will form groups of three and submit an application, in the prescribed format, to the Head of the Department (HOD) requesting the allocation of a CEP guide.

5. Guide Allocation

A departmental committee will review the applications and allocate guides to the student groups, following departmental policies and criteria for the selection of suitable guides.

6. Publication of Student-Guide Allocation List

The department will publish the list of student groups along with their respective CEP guides to facilitate collaboration and planning.

7. Topic Finalization

Each student group will meet with their assigned guide to discuss and finalize the topic of their Community Engagement Programme, ensuring it aligns with the curriculum and community needs.

8. Questionnaire Development

If necessary, students will develop a questionnaire for data collection as part of their fieldwork. This will be done under the guidance of their CEP guide to ensure its relevance and appropriateness to the chosen topic.

9. Fieldwork and Data Collection

Students will carry out fieldwork or field surveys in the designated community or area to collect relevant data and insights that will form the foundation of their CEP project.

10. Data Analysis and Presentation

Students will analyze the data collected from the fieldwork and present their findings in a structured format. Guidance from the assigned CEP guide will be sought to ensure accuracy and relevance.

11. Project Preparation

The final CEP report will be prepared by the student group, following the format prescribed by the department. The report will be completed under the supervision of the assigned guide to ensure it meets academic and community engagement standards.

12. Assessment and Evaluation

The completed CEP projects will be assessed and evaluated according to the guidelines laid out by the examination department. Evaluation will focus on both the academic quality and the practical community impact of the project.

13. Inclusion of Geo-tagged Photographs

The final report must include geo-tagged photographs taken during fieldwork or survey activities, serving as evidence of the students' engagement with the community.

14. Inclusion of Study Area Map

The report must also include a map of the study area to provide geographical context for the fieldwork or community survey conducted.

15. Project Length

The final CEP report should consist of 20 to 25 pages, documenting the entire process, findings, and conclusions of the Community Engagement Programme.

This SOP provides a comprehensive guide for the successful completion of the Community Engagement Programme in accordance with the NEP 2020 and departmental requirements.

Topics and Learning Points

Unit 1: Planning and Preparation for CEP Work	**Teaching Hours**
1.1 Defining the CEP Topic	**15**
1.2 Scope of the Study Area	
1.3 Identifying Key Research Questions for Field Study	
1.4 Understanding the CEP Objectives	
1.5 Ethical Considerations in CEP Work	
1.6 Creating a CEP Plan	
Unit 2: Fieldwork Data Collection	**25**
2.1 Selecting the Fieldwork Methods (Surveys, Interviews, Observations)	
2.2 Collecting Primary Data from the Field	
2.3 Recording and Organizing Field Data (Photographs, Maps, Notes)	
2.4 Handling Challenges in Data Collection	
2.5 Post-Fieldwork Data Compilation and Preliminary Analysis	

Unit 3: CEP Report Preparation and Presentation **20**

3.1 Analyzing Field Data (Quantitative and Qualitative Methods)

3.2 Structuring the CEP Report

3.3 Writing the Introduction and Study Area Description

3.4 Formulating Objectives and Hypothesis

3.5 Writing the Methodology and Data Analysis Sections

3.6 Discussing Results and Significance of Findings

3.7 Conclusion and Recommendations

3.8 Bibliography and References

3.9 Preparing for Oral Presentation of the Report

3.10 Submission of the Final CEP Report

References:

1. Mukherjee, Neela (2002). Participatory Learning and Action with 100 Field Methods. Concept Publishing, New Delhi.
2. Rao, P. S. (2006). Research Methodology for Social Sciences. Anmol Publications, New Delhi.
3. Kothari, C. R. (2004). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
4. Sundaram, K. V. (2007). Geography Fieldwork and Techniques. Concept Publishing, New Delhi.
5. Singh, R. L. (1994). Elements of Practical Geography. Kalyani Publishers, New Delhi.

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= Weak relation, 2= Moderate relation, 3= Strong relation

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	3	3	3	0	0	0	3
CO2	0	0	0	3	0	0	0	0	3	3
CO3	3	3	3	0	0	0	3	0	0	3
CO4	3	0	0	0	3	3	3	0	0	3
CO5	3	0	3	0	0	3	3	0	0	3
CO6	0	0	0	0	0	3	3	3	0	3
CO7	3	0	0	3	0	3	0	3	0	3

Justification:

PO1 (Critical and Creative Thinking): Critical thinking is essential in CO1 for identifying geographic issues, while CO3 involves diverse perspectives in community engagement. CO4 emphasizes innovative solutions to problems, CO5 requires interdisciplinary approaches, and CO7 focuses on reflective evaluation.

PO2 (Communication Skills): CO3 demonstrates communication skills in engaging with community members, while CO1 requires clear articulation of geographic issues. These outcomes emphasize the importance of effective communication in presenting complex ideas during community projects.

PO3 (Multicultural Competence): CO3 involves engaging with diverse community members, necessitating respect for different cultures. CO1 highlights the importance of understanding diverse communities, and CO5 ensures inclusive solutions through interdisciplinary approaches.

PO4 (Research Skills): CO1 relies on research for identifying key issues, while CO2 emphasizes the use of geographic tools like GIS. CO7 requires reflection and synthesis of data, ensuring students can explore and evaluate issues effectively.

PO5 (Environmental Awareness): Environmental awareness is directly linked to CO1, where students identify environmental challenges, and CO4, where solutions to geographic problems often involve environmental sustainability.

PO6 (Problem-solving Abilities): Problem-solving is central in CO1 for issue identification, while CO4 highlights solution design. CO5 reflects interdisciplinary collaboration, and CO6 emphasizes ethical problem-solving. CO7 involves evaluating the effectiveness of problem- solving efforts.

PO7 (Collaboration and Teamwork): CO3 involves collaboration in community engagement, while CO4 and CO5 emphasize teamwork in designing solutions. CO6 ensures ethical collaboration within teams, crucial for achieving common goals.

PO8 (Value Inculcation): CO6 reflects ethical application in community engagement, and CO7 emphasizes critical reflection on ethical implications, ensuring students practice responsible and value-driven behavior.

PO9 (Digital and Technological Skills): CO2 highlights proficiency in geographic tools like GIS, which aligns with digital and technological skills. CO10 reflects the use of digital tools in community service initiatives.

PO10 (Community Engagement and Service): Community engagement is central to CO1, where identifying issues lays the foundation. CO3 reflects successful engagement, CO4 involves community-centered solutions, and CO7 emphasizes reflecting on the community impact of projects.

CBCS Syllabus as per NEP 2020 for SYBA Semester IV (2024 Pattern)

Name of the Programme	**:** B.A. Geography
Programme Code	**:** UAGEO
Class	**:** S.Y.B.A.
Semester	**:** IV
Course Type	**:** Minor (Theory)
Course Code	**:** GEO-256-MN
Course Title	**:** Geography of Maharashtra
No. of Credits	**:**02
No. of Teaching Hours	**:**30

Course Objectives:

1. To understand the geological structure and formation of Maharashtra's landforms.
2. To analyze the drainage systems, including major rivers and their basins in Maharashtra.
3. To study the climate patterns and their variations across different regions of Maharashtra.
4. To explore the physiographic divisions of Maharashtra, including the Western Ghats, Deccan Plateau, and coastal plains.
5. To examine the soil types and their distribution across Maharashtra.
6. To assess the natural vegetation and forest types found in various parts of Maharashtra.
7. To investigate the occurrence and impact of natural hazards, such as floods and droughts, in Maharashtra.

Course Outcomes:

By the completion of the course, students will be able to:

CO 1: Explain the geological structure and formation of Maharashtra's landforms.

CO 2: Analyze and describe the major drainage systems and river basins in Maharashtra.

CO 3: Interpret climate patterns and understand their regional variations across Maharashtra.

CO 4: Identify and differentiate the physiographic divisions of Maharashtra, including the Western Ghats, Deccan Plateau, and coastal plains.

CO 5: Classify and describe the various soil types and their distribution in Maharashtra.

CO 6: Assess and categorize the natural vegetation and forest types found in Maharashtra.

CO 7: Evaluate the occurrence and impacts of natural hazards such as floods and droughts in Maharashtra.

Topics and Learning Points	Teaching Hours
Unit 1: Introduction of Maharashtra	**10**
1.1 Historical and Political Background of the state	
1.2 Geographical location of State	
1.3 Adjoining States	
1.4 Physical and Administrative Divisions	
Unit 2: Physical Setting of Maharashtra	**10**
2.1 Geological Structure of Maharashtra	
2.2 Physical Structure of (Mountain, Plateau, Plains)	
2.3 Drainage Pattern (East and West Flowing Rivers)	
2.4 Major Soil Types and Distribution	
Unit 3: Climate of Maharashtra	**10**
3.1 Climatic Regions of Maharashtra	
3.2 Distribution of Rainfall	
3.3 Draught prone Areas: problems and Management	
3.4 Flood Areas: Problems and Management	

Reference:

1. S.G. Khedkar, 2014, Maharashtra: A Political History, New Century Book House.
2. M.R. Karanjkar, 2010, Maharashtra: History and Culture, Shubhi Publications.
3. V.S. Kulkarni, 2007, Geography of Maharashtra, Concept Publishing Company.
4. A.V. Deshmukh, 2012 Maharashtra: Geography, History and Culture, Prabhat Prakashan.
5. N. S. Apte, 2015, Maharashtra: A Comprehensive Overview, Mapin Publishing.
6. N.V. Chitnis, 2008, Geology of Maharashtra, University of Pune Press.
7. S. R. Subhedar, 2011, The Geology of Maharashtra: An Introduction, Himalaya Publishing House.
8. Savadi, M.R., 2011. Geography of Maharashtra. Vishwavidyalaya Prakashan, Pune. (Marathi)
9. More, J.C., 2014. Geography & Agriculture for MPSC Examination. Atharv Publication, Pune. (Marathi)

Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No relation, 1= Weak or low relation, 2= Moderate or partial relation, 3= Strong or direct relation

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	2	3	3	3	2	3	2	2
CO2	3	3	2	3	2	3	2	2	1	1
CO3	3	2	1	3	2	2	1	1	1	1
CO4	3	3	2	3	3	3	2	3	2	2
CO5	2	2	1	2	3	3	3	2	3	2
CO6	2	2	1	2	3	3	3	2	3	3
CO7	3	2	2	3	3	3	3	2	2	3

Justification:

PO1: Critical and Creative Thinking: CO1, CO2, CO3, and CO4 strongly relate to critical and creative thinking by requiring complex analysis of geological, drainage, and climatic data. CO5 and CO6 involve moderate critical thinking for data evaluation, while CO7 requires strong critical thinking for assessing natural hazards.

PO2: Communication Skills: Effective communication is crucial for CO1, CO2, and CO4 in explaining geographical concepts. CO3 and CO7 need clear presentation of climate and hazard data, with a moderate need for CO5 and CO6 in describing soil and vegetation.

PO3: Multicultural Competence: CO1 and CO2 support multicultural understanding through regional insights, while CO6 and CO7 emphasize ecological and community values, contributing to global awareness.

PO4: Research Skills: CO1, CO2, CO3, and CO7 strongly relate to research skills for hypothesis testing and data analysis. CO5 and CO6 require moderate research skills for soil and vegetation studies.

PO5: Environmental Awareness: CO1 and CO4 enhance environmental awareness through understanding landforms, while CO5 and CO6 support conservation. CO7 addresses environmental degradation and disaster management.

PO6: Problem-Solving Abilities: CO1, CO2, CO3, and CO4 solve issues related to landforms, drainage, and climate. CO5 and CO6 address soil and vegetation management, and CO7 focuses on disaster management.

PO7: Collaboration and Teamwork: CO1 and CO4 involve teamwork in geological and physiographic research. CO5 and CO6 require team-based efforts for soil and vegetation assessments, and CO7 may need collaborative work for hazard management.

PO8: Value Inculcation: CO1 and CO4 promote ethical practices in research and conservation. CO5 and CO6 encourage responsible stewardship, while CO7 includes ethical considerations for disaster response.

PO9: Digital and Technological Skills: CO1 and CO5 use digital tools for analysis, while CO6 and CO7 involve technology for mapping and analyzing vegetation and hazards.

PO10: Community Engagement and Service: CO1 and CO4 inform community conservation efforts, and CO6 and CO7 engage communities in environmental protection and disaster preparedness.

CBCS Syllabus as per NEP 2020 for S.Y.B.A Geography (2024 Pattern)

Name of the Programme : B.A. Geography
Programme Code : UAGEO
Class : S.Y.B.A.
Semester : IV
Course Type : Minor (Practical)
Course Code : GEO-257-MN
Course Title : Practical in Land Measurement Techniques
No. of Credits : 02
No. of Teaching Hours : 60

Course Objectives:

1. To gain an understanding of the meaning, definitions, and importance of land measurement techniques, including their scope and applications.
2. To develop skills in measuring areas of various shapes (circle, square, rectangle, triangle, and uneven shapes) using traditional methods.
3. To understand and apply concepts of different area units such as Guntha, Ekar, Hector, and Square Kilometer, including their conversions.
4. To acquire practical knowledge and skills in handling advanced measurement instruments such as GPS, Total Stations, and GNSS.
5. To learn to conduct GPS measurements and record data including Latitude, Longitude, and Altitude, and apply these measurements to practical scenarios.
6. To develop skills in using Total Stations for measuring points and areas, and understand the associated techniques for accurate data collection.
7. To gain proficiency in conducting GNSS (DGPS) measurements and interpreting data for land measurement purposes.

Course Outcomes:

By the end of the course, students will be able to:

CO1: Demonstrate understanding of the meaning, definitions, importance, scope, and applications of land measurement techniques.

CO2: Apply traditional methods to measure areas of various shapes such as circles, squares, rectangles, triangles, and irregular figures.

CO3: Perform unit conversions and apply knowledge of area units such as Guntha, Ekar, Hector, and Square Kilometer in measurement tasks.

CO4: Operate advanced land measurement instruments including GPS, Total Stations, and GNSS with practical proficiency.

CO5: Conduct GPS-based measurements, record latitude, longitude, and altitude data, and apply them to real-life land surveying scenarios.

CO6: Utilize Total Stations to measure points and areas accurately and implement related techniques for reliable data collection.

CO7: Carry out GNSS (DGPS) measurements effectively and interpret the data for practical land measurement applications.

Topics and Learning Points

UNIT 1: Introduction to land measurement techniques **Teaching Hours**

1.1 Meaning and definitions Land Measurement **12**

1.2 Scope, Importance and applications of the land measurement

1.3 Career opportunities in land measurement

UNIT 2: Traditional measurement techniques **24**

2.1 Measurement of area (Circle, Square, Rectangle, Triangle, Uneven shape)

2.2 Concepts of Guntha (R), acre, Hector and Square Kilo miter

2.3 Measurement of Guntha, acre and Hector

2.4 Conversion of area (R in to acre, hector into acre, Square km into square meter, square meter to square feet)

UNIT 3: Advanced measurement techniques **24**

3.1 Introduction and handling techniques of GPS, Total Station and GNSS

3.2 Conducting GPS point with Latitude, Longitude and Altitude

3.3 Plotting techniques GPS point on graph paper and measurement of area

3.4 Conducting total station points and measurement of area

3.5 Conducting GNSS (DGPS) points and measurement of area

3.6 Reading of 7/12 Utara or Extract (Village sample 7 and 12)

References:

1. Sharma J. P., 2010, Prayogic Bhugol, Rastogi Publishers, Meerut.
2. Singh R. L. and Singh R. P. B., 1999, Elements of Practical Geography, Kalyani Publishers.
3. Slocum T. A., Mcmaster R. B. and Kessler F. C., 2008, Thematic Cartography and Geovisualization (3rd Edition), Prentice Hall.
4. Tyner J. A., 2010, Principles of Map Design, The Guilford Press.
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11. Saha P., Basu P., 2007, Advanced Practical Geography, Books and Allied (P) Ltd, Kolkata
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Mapping of Program Outcomes with Course Outcomes

Weightage: 0= No Relation, 1= Weak relation, 2= Moderate relation, 3= Strong relation

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	1	1	2	1	1	1	1	1	1
CO2	2	1	1	1	1	1	1	1	1	1
CO3	2	1	1	1	1	1	1	1	1	1
CO4	3	2	1	2	1	1	1	1	3	1
CO5	3	2	1	2	1	1	1	1	3	1
CO6	3	2	1	2	1	1	1	1	3	1
CO7	2	2	1	2	1	1	1	1	1	2

Justification

PO1: Critical and Creative Thinking: CO1 focuses on understanding land measurement terminology and scope, which requires analytical skills to evaluate concepts. CO2 involves measuring areas and converting units, demanding logical reasoning and problem-solving abilities. CO3 emphasizes unit conversions, which require applying analytical techniques. CO4 highlights handling GPS equipment and analyzing data, involving critical thinking for accuracy. CO5 deals with using Total Stations for precision measurements, requiring innovative and creative approaches. CO6 centers on GNSS measurements, demanding critical analysis and interpretation of field data. CO7 relates to interpreting land records, which involves analytical and evaluative thinking.

PO2: Communication Skills: CO1 emphasizes explaining terminology and scope, which demonstrates fundamental communication abilities. CO2 requires articulating traditional measurement techniques, which rely on effective communication. CO7 involves presenting interpretations of land records, enhancing communication and reporting skills.

PO4: Research Skills: CO1 highlights exploring scope and career opportunities in land measurement, relating to research orientation. CO2 applies traditional measurement techniques, which require practice-based research. CO3 deals with converting and understanding different units,

involving inquiry-based problem-solving. CO4, CO5, and CO6 together focus on conducting GPS, Total Station, and GNSS measurements, which require data collection, analysis, and interpretation—core elements of research skills.

PO6: Problem-Solving Abilities: All COs (CO1–CO7) emphasize the use of measurement methods, both traditional and modern, which demand logical reasoning and field-based problem-solving skills to ensure accuracy.

PO7: Collaboration and Teamwork: CO7 highlights the importance of interpreting and applying land records in practical contexts, which often requires group work and collaboration with stakeholders.

PO8: Value Inculcation: CO1 promotes awareness of scope and career opportunities, which instills professional ethics. CO7 emphasizes interpreting and applying land records, which involves sensitivity to ethical practices and fairness.

PO9: Digital and Technological Skills: CO4 highlights operating GPS devices, which requires digital literacy. CO5 emphasizes using Total Stations for data collection, which builds technological proficiency. CO6 focuses on applying GNSS (DGPS) technology, which develops strong digital and technical competencies.

PO10: Community Engagement and Service: CO1 highlights understanding the scope and applications of land measurement, which supports service to the community through informed land management. CO7 emphasizes interpreting land records, which contributes to local governance, community service, and social responsibility.

CBCS Syllabus as per NEP 2020 for S.Y.B.A Geography (2024 Pattern)

Name of the Programme	**:** B.A. Geography
Programme Code	**:** UAGEO
Class	**:** S.Y.B.A.
Semester	**:** IV
Course Type	**:** Open Elective (Practical)
Course Code	**:** GEO-258-OE
Course Title	**:** Practical in Disaster Management
No. of Credits	**:**02
No. of Teaching Hours	**:**60

Course Objectives:

1. To provide students with an understanding of natural disasters, focusing on earthquake preparedness and response.
2. To develop skills for managing flood situations, including prediction, evacuation, and water rescue techniques.
3. To equip students with knowledge and techniques for fire safety and response, including the use of firefighting equipment.
4. To train students in accident management, with a focus on first aid for common injuries and CPR methods.
5. To educate students on handling hazardous situations, such as gas leaks, with an emphasis on safety procedures and preventive measures.
6. To impart knowledge on managing biological hazards, specifically snake bites, including identification, first aid, and preventive awareness.
7. To prepare students to respond effectively to cloudbursts, flash floods, and LPG cylinder leaks, covering survival techniques, safety protocols, and post-disaster management

Course Outcomes:

By the end of the course, students will be able to:

CO1: Understand and apply earthquake preparedness and response techniques, including creating emergency plans and conducting drills.

CO2: Develop and implement flood management strategies, including flood prediction, evacuation procedures, and water rescue techniques.

CO3: Demonstrate knowledge and skills in fire safety and response, including the use of firefighting equipment and evacuation procedures.

CO4: Apply accident management skills, including providing first aid for common injuries and performing CPR.

CO5: Handle hazardous situations such as gas leaks effectively, with a focus on safety procedures and preventive measures.

CO6: Manage biological hazards such as snake bites by identifying venomous species, administering first aid, and promoting preventive awareness.

CO7: Respond effectively to cloudbursts, flash floods, and LPG cylinder leaks, utilizing survival techniques, safety protocols, and post-disaster management strategies.

Topics and Learning Points

Unit 1: Natural Disasters and Emergency Response **Teaching Hours**

1.1 Earthquake Preparedness and Response **20**

- Understanding seismic zones
- Creating emergency plans and kits
- Conducting earthquake drills

1.2 Flood Management

- Flood prediction and early warning systems
- Evacuation procedures and flood relief camps
- Water rescue techniques

1.3 Thunderstorm and Lightning Disasters

- Understanding the formation and impact of thunderstorms and lightning
- Safety measures and immediate response actions during thunderstorms
- Lightning strike first aid and prevention strategies

Unit 2: Fire, Accidents, and Hazardous Situations Management **20**

2.1 Fire Safety and Response

- Types of fires and firefighting techniques
- Use of fire extinguishers and safety equipment
- Evacuation procedures in case of fire

2.2 Accident Management and CPR Techniques

- First aid for common injuries (fractures, burns, etc.)
- Cardiopulmonary Resuscitation (CPR) methods
- Managing road traffic accidents and accident reporting

2.3 Gas Leakage Response

- Handling gas leaks in homes and industries
- Evacuation and ventilation procedures
- Use of safety equipment and preventive measures

Unit 3: Biological Hazards and Miscellaneous Disasters **20**

3.1 Snake Bite Management

- Identifying venomous and non-venomous snakes
- First aid for snake bites
- Preventive measures and awareness

3.2 Cloudburst and Flash Flood Response

- Understanding cloudburst phenomena
- Immediate response and survival techniques
- Post-disaster assessment and rehabilitation

3.3 Handling Home Cylinder Leaks

- Identifying and responding to LPG cylinder leaks
- Safety protocols for leak prevention
- Emergency response and evacuation during a leak

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6. Joshi, S. N. (2012). River and Coastal Floods: Guidelines for Emergency Management. New India Publishing Agency.

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CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	0	2	2	3	1	1	1	3
CO2	3	1	2	2	3	3	1	1	1	3
CO3	2	1	2	1	2	2	1	1	2	2
CO4	3	3	1	3	1	3	3	3	3	2
CO5	3	3	1	3	2	3	2	2	3	2
CO6	3	2	2	3	2	3	2	2	2	2
CO7	3	3	2	3	3	3	3	3	3	3

Justification

PO1: Critical and Creative Thinking: Critical and creative thinking is essential for developing effective disaster response strategies. CO1 (earthquake preparedness) and CO4 (accident management) involve innovative problem-solving, while CO6 (biological hazards) and CO7 (various disaster scenarios) also require analytical thinking and creative approaches to ensure effective responses.

PO2: Communication Skill: Effective communication is key for giving clear instructions and ensuring safety protocols are followed during disasters. CO4 (first aid) and CO5 (hazardous situations) rely heavily on communication for proper implementation, while CO1 (earthquake preparedness) and CO7 (disaster response) also demand effective communication, though with less emphasis.

PO3: Multicultural Competence: Cultural sensitivity is important for effective disaster management as diverse communities may have unique needs during crises. CO2 (flood management) and CO3 (fire safety) require awareness of cultural and social differences, while CO6 (biological hazards) and CO7 (disaster scenarios) also benefit from multicultural competence in planning and response.

PO4: Research Skills: Research skills are crucial for refining disaster management strategies and improving practices. CO1 (earthquake preparedness) and CO2 (flood prediction) benefit directly from research-based approaches, while CO4 (accident management) and CO5 (hazardous situations) also require data analysis and continuous study to enhance response effectiveness.

PO5: Environmental Awareness: Understanding environmental impacts is vital for sustainable disaster management. CO1 (earthquake preparedness), CO2 (flood management), and CO7 (disaster responses) all demand strong environmental awareness to reduce long-term risks and promote resilience.

PO6: Problem-Solving Abilities: Problem-solving is central to managing disasters effectively. CO1 (earthquake preparedness), CO2 (flood management), and CO4 (accident management) emphasize practical solutions in emergencies, while CO6 (biological hazards) and CO7 (disasters) also rely on quick and logical decision-making under pressure.

PO7: Collaboration and Teamwork: Collaboration is a key element in disaster management efforts. CO4 (accident management) and CO7 (disaster response) especially benefit from teamwork, requiring coordination among multiple individuals and agencies, while CO1 (earthquake preparedness) and CO2 (flood management) also require cooperative efforts to succeed.

PO8: Value Inculcation: Ethical considerations are crucial in disaster response. CO4 (first aid) and CO7 (disaster response) involve value-based approaches, such as prioritizing human life and fairness in assistance, while CO1 (earthquake preparedness) and CO2 (flood management) show some relevance but with less emphasis on ethics.

PO9: Digital and Technological Skills: Technology plays an increasing role in disaster management. CO5 (hazardous situations) and CO7 (disaster response) depend strongly on digital and technological skills for monitoring, detection, and response, while CO1 (earthquake preparedness) and CO3 (fire safety) involve less reliance on technology but still benefit from it.

PO10: Community Engagement and Service: Community engagement is essential for effective disaster management and resilience building. CO1 (earthquake preparedness), CO2 (flood management), and CO7 (disaster response) all require active involvement of communities through awareness programs, education, and direct participation in safety and recovery efforts.

CBCS Syllabus as per NEP 2020 for S.Y.B.A Geography (2024 Pattern)

Name of the Programme : B.A. Geography
Programme Code : UAGEO
Class : S.Y.B.A.
Semester : IV
Course Type : Skill Enhancement Course (Practical)
Course Code : GEO-259-SEC
Course Title : Practical in Computer Cartography
No. of Credits : 02
No. of Teaching Hours : 60

Course Objectives:

1. Understand basic techniques of data entry, data import, and labeling in Excel.
2. Develop skills to organize and analyze data using Excel tools and functions.
3. Learn methods of graphical and statistical data representation for geographic information.
4. Construct accurate line, bar, and pie charts using computer-based applications.
5. Design and format graphical representations with clarity, aesthetics, and precision.
6. Apply computer tools to export, manage, and present graphical outputs effectively.
7. Develop the ability to create professional PowerPoint presentations integrating maps, graphs, and geographic data.

Course Outcomes:

By the end of the course students will able to

CO1: Enter, import, and organize geographic data in Excel accurately.
CO2: Apply data labeling and analysis functions for interpretation.
CO3: Construct and interpret simple/multiple line graphs using Excel.
CO4: Prepare simple, multiple, and compound bar graphs for quantitative representation.
CO5: Create and analyze pie charts for percentage-based data visualization.
CO6: Design, format, and export graphical outputs with proper layout, clarity, and aesthetics.
CO7: Prepare effective PowerPoint presentations using Excel graphs and thematic visual elements.

Topics and Learning Points	Teaching Hours

Unit – 1: Data Handling Methods **10**

1.1 Manual data entry in Excel

1.2 Inserting data from other sources into Excel

1.3 Labeling of tables, columns, rows, headings

1.4 Data Analysis in Excel

Unit – 2: Methods of Data Representation **30**

2.1 Simple and Multiple Line Graph

2.2 Simple, Multiple, and Compound Bar Graph

2.3 Pie Chart

Unit – 3: Graphical Representation and Power Point **20**

3.1 Graphical Design (Colours, titles, legends, axes formatting, font styles)

3.2 Graphical Layout (Page setup, arrangement, alignment, spacing)

3.3 Data and Graph Export (Exporting charts, saving as images/PDF, inserting into documents)

3.4 Power Point Presentation (Importing Excel charts, slide layout, thematic presentation design)

Reference Books:

1. Robinson, A. H., et al. (2013). *Elements of Cartography.* John Wiley & Sons.
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14. Khullar, D. R. (2014). *Essentials of Practical Geography.* NCERT / Associated Publications.

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CO2	2	3	3	2	1	1	2	1	3	2
CO3	2	3	2	2	2	1	1	1	3	2
CO4	2	3	2	2	2	1	1	2	3	2
CO5	1	2	2	2	3	1	1	2	3	3
CO6	1	2	3	2	3	2	2	2	3	2
CO7	1	2	3	2	3	2	2	3	3	3

Justification for the Mapping

PO1: Critical and Creative Thinking

CO1, CO3, CO4, CO5, and CO6 require students to think critically while handling data, selecting appropriate graph types, designing visual layouts, and creatively presenting information using Excel and PowerPoint.

PO2: Communication Skills

CO2, CO4, CO6, and CO7 enhance communication skills by training students to present data clearly through charts, graphs, and professional presentations that communicate patterns effectively.

PO3: Multicultural Competence

CO1 and CO2 help students understand diverse data types and representation methods, promoting openness to global cartographic and visualization practices used in different regions, including India.

PO4: Research Skills

CO2, CO3, CO5, and CO6 strengthen research abilities by teaching data collection, organization, analysis, and transformation into visual formats suitable for academic and professional use.

PO5: Environmental Awareness

CO5 and CO7 involve representing geographical, demographic, and environmental datasets, helping learners understand sustainability-related data and visualize environmental patterns.

PO6: Problem-Solving Abilities

CO3, CO4, CO5, and CO7 develop problem-solving skills by requiring learners to choose suitable Excel tools, apply analytical formulas, and convert raw data into meaningful visual knowledge.

PO7: Collaboration and Teamwork

CO5 and CO6 often involve teamwork—such as jointly preparing data sheets, designing graphs, and producing collaborative PowerPoint presentations—enhancing group-based analytical skills.

PO8: Value Inculcation

CO1, CO5, and CO7 promote responsible use of data, ethical representation, and respect for accuracy when preparing visual materials, fostering academic integrity and professional ethics.

PO9: Digital and Technological Skills

CO3, CO6, and CO7 focus on digital proficiency by requiring the use of Excel functions, chart tools, exporting techniques, and PowerPoint design skills to produce polished visual outputs.

PO10: Community Engagement and Service

CO5 and CO7 encourage learners to apply data visualization techniques to community-based projects such as local surveys, demographic mapping, and social-awareness presentations.