



Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

Four Year B.A. Degree Program in Geography

(Faculty of Science & Technology)

CBCS Syllabus

SYBA (Geography) Semester -III

For Department of Geography

Tuljaram Chaturchand College, Baramati

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

To be implemented from Academic Year 2024-2025

Title of the Programme: FYBA (Geography)**Preamble**

AES's Tuljaram Chaturchand College has decided to change the syllabus of various faculties from June, 2023 by taking into consideration the guidelines and provisions given 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 outcomes for the development of the students. The credit structure and the courses framework provided in the NEP are nationally accepted and internationally comparable.

The rapid changes in science and technology and new approaches in different areas of Geography and related subjects, Board of Studies in Geography of Tuljaram Chaturchand College, Baramati - Pune has prepared the syllabus of SYBA Geography Semester - III under the Choice Based Credit System (CBCS) by following the guidelines of NEP 2020, NCeF, NHEQF, Prof. R.D. Kulkarni's Report, GR of Gov. of Maharashtra dated 20th April and 16th May 2023 and Circular of SPPU, Pune dated 31st May 2023.

A degree in geography will provide students, the knowledge and skills to begin a variety of rewarding careers. Geographers work as urban planners, GIS technicians and analysts, disaster preparedness planners, teachers, environmental scientists, remote sensing analysts, transportation planners, demographers, hydrologists and in a variety of other areas. Students who complete three-year degree in Geography, courses will examine the spatial organization of physical features and human activities at a variety of spatial scales from local to global. Students will be able to locate features on the surface of the earth, explain why they are located where they are, and describe how places are similar and/or different. Students will also examine human interactions with the environment and describe how physical and cultural landscapes change through time. Students completing physical geography courses will be able to describe the processes that drive earth's climate, create landforms, and govern the distribution of plants and animals.

Programme Specific Outcomes (PSOs)

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 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 centred 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, Baramati
(Autonomous)

Board of Studies (BOS) in Geography

2024-25

Sr. No.	Name	Designation
1.	Dr. Arun S. Magar	Chairman
2.	Dr. Asaram S. Jadhav	Member
3.	Mr. Vinayak D. Chavan	Member
4.	Ms. Sayali B. Pawar	Member
5.	Ms. Aysha A. Mulani	Member
6.	Ms. Aisha S. Tamboli	Member
7.	Dr. Santosh Lagad	Vice-Chancellor Nominee
8.	Dr. Pravin Kokane	Expert from other University
9.	Dr. T. P. Shinde	Expert from other University
10.	Dr. Babaji Maskare	Industry Expert
11.	Mr. Ganesh Ghanawat	Meritorious Alumni
12.	Ms. Tilekar Rucha Sachin	Student Representative
13.	Ms. Shaikh Muskan Ekbal	Student Representative

Credit Distribution Structure for S.Y.B.A.-2024-2025 (Geography)

Level	Semester	Major		Minor	OE	VSC, SEC, (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr/Sem	Degree/Cum. Cr.
		Mandatory	Electives							
4.5	III	GEO 201 MJM Geomorphology [2 T]	--	GEO 211 MM Geography of India [2 T]	GEO 216 OE Disaster Management [2 T]	GEO 221 VSC Fundamentals of Remote Sensing [2 T]	AEC- [2 T]	CC1 (2 credit)	24	UG Certificate 44 credits
		GEO 202 MJM Oceanography [2 T]	GEO 212 MM Cartographic Techniques [2 P]							
		GEO 203 MJM Disaster Management [2 T]		GEO 204 MJM Practical in Scale & Projection [2 P]						
		GEO 204 MJM Practical in Scale & Projection [2 P]								
	IV	GEO 251 MJM Population Geography [2 T]	--	GEO 261 MN Geography of Maharashtra [2 T]	GEO 266 OE Practical in Disaster Management [2 P]	GEO 276 SEC Practical in Remote Sensing [2 P]	AEC- (2 credit)	CC2 (2 credit)	22	
		GEO 252 MJM Settlement Geography [2 T]	GEO 262 MN Land Measurement					CEP (2 Credit)		
		GEO 253 MJM Tourism Geography [2 T]								

		GEO 254 MJM Statistical Techniques [2 P]		Techniques [2 P]						
	Cu m Cr.	16	--	8	4	4	6	8	46	

Course Structure for S.Y.B.A. Geography (2023 Pattern)

Sem	Course Type	Course Code	Course Name	Theory / Practical	Credits
III	Major Mandatory	GEO 201 MJM	Fundamentals of Geomorphology	Theory	02
	Major Mandatory	GEO 202 MJM	Fundamentals of Oceanography	Theory	02
	Major Mandatory	GEO 203 MJM	Disaster Management	Theory	02
	Major Mandatory	GEO 204 MJM	Practical in Scale & Projection	Practical	02
	Minor (MN)	GEO 211 MN	Geography of India	Theory	02
	Minor (MN)	GEO 212 MN	Cartographic Techniques for Data Representation	Practical	02
	Open Elective (OE)	GEO 216 OE	Disaster Management	Theory	02
	Vocational Skill Course (VSC)	GEO 221 VSC	Fundamentals of Remote Sensing	Theory	02
	Ability Enhancement Course (AEC)	MAR 231 AEC	भाषिक उपयोजन व लेखन कौशल्य	Theory	02
		HIN 231 AEC	हहिंदी भाषिा: सजन कौशल्य		
		SAN 231 AEC	प्राथमिक सिंभाषिण कौशल्य		
	Field Project (FP)	GEO-235-FP	Project	Practical	02
	Co-curricular Course (CC)	YOG/PES/CUL/NS S/NCC-239-CC	To be selected from the Basket	Theory	02
Generic IKS	GEN-245-IKS	IKS	Theory	02	
Total Credits Sem-I					24
IV	Major Mandatory	GEO-251-MJM	Fundamentals of Population Geography	Theory	02
	Major Mandatory	GEO-252-MJM	Fundamentals of Settlement Geography	Theory	02
	Major Mandatory	GEO-253-MJM	Tourism Geography	Theory	02
	Major Mandatory	GEO-254-MJM	Statistical Techniques in Geography	Practical	02
	Minor	GEO-261-MN	Geography of Maharashtra	Theory	02
	Minor	GEO-262-MN	Land Measurement Techniques	Practical	02
	Open Elective (OE)	GEO-266-OE	Practical in Disaster Management	Practical	02
	Skill Enhancement Course (SEC)	GEO-276-SEC	Practical in Remote Sensing	Practical	02
	Ability Enhancement Course (AEC)	MAR 281 AEC	लेखन मनमिती व परीक्षण कौशल्ये	Theory	02
		HIN 281 AEC	हहिंदी भाषिा: सिंप्रेिण कौशल		
		SAN 281 AEC	प्रागत सिंभाषिण कौशल्ये		
	Community Engagement Project (CEP)	GEO-285-CEP	Project	Practical	02
	Co-curricular Course (CC)	YOG/PES/CUL/NS S/NCC-289-CC	To be selected from the Basket	Theory	02
Total Credits					22
Grand Total Sem III + Sem IV					46

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: B.A. Geography
Programme Code	: UAGEO
Class	: S.Y.B.A.
Semester	III
Course Type	: Major Mandatory (Theory)
Course Code	: GEO-201-MJM
Course Title	: Fundamentals of Geomorphology
No. of Credits	02
No. of Teaching Hours	30

Course Objectives:

1. To describe the geological scale and its significance in understanding landforms.
2. To explain the internal structure of the Earth and its role in geomorphic processes.
3. To analyze the Theory of Plate Tectonics and its implications for landscape evolution.
4. To recognize the types of weathering and their associated landforms.
5. To understand the fundamental concepts of fluvial and coastal processes, including erosion, transportation, and deposition.
6. To identify and describe the major fluvial and coastal landforms resulting from these processes.
7. To evaluate the importance of fluvial and coastal processes in shaping landscapes and influencing human activities.

Course Outcomes:

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

- CO1.** Demonstrate an understanding of the geological scale and its application in geomorphological studies.
- CO2.** Explain the internal structure of the Earth and its relevance to landform development.
- CO3.** Analyse and interpret the Theory of Plate Tectonics in relation to landscape formation.
- CO4.** Identify different types of weathering and recognize their respective landforms.

CO5. Demonstrate a comprehension of the basic principles underlying fluvial and coastal processes.

CO6. Recognize and differentiate between various fluvial and coastal landforms.

CO7. Analyze and discuss the significance of fluvial and coastal processes in landform evolution and societal contexts.

Topics and Learning Points

UNIT 1: Introduction to Geomorphology	Teaching Hours
1.1 Definition, nature and scope of geomorphology	10
1.2 Branches of geomorphology	
1.3 Geological scale	
1.4 Internal structure of the Earth	
1.5 Theory of Plate Tectonics	
UNIT 2: Weathering and Mass movement	10
3.1 Definition and basic concepts	
3.2 Weathering: types and related landforms	
3.3 Mass movement: types and related landforms	
3.4 Importance of weathering and mass movements	
UNIT 3: Fluvial and Coastal Processes	10
4.1 Definition and basic concepts	
4.2 Process of erosion, transportation and deposition	
4.3 Fluvial landforms	
4.4 Coastal landforms	
4.5 Importance of fluvial and coastal processes	

References:

1. Bloom, A.L. (2012): Geomorphology- A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi
2. Chorley, R.J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology,

Methuen, London.

3. Gregory, K.J. and Goudie, A.S. (2014): The SAGE Handbook of Geomorphology, SAGE, London.
4. Holmes, (1944): Principles of Physical Geology, Thomas Nelson and Sons Ltd, London.
5. Huggett, R.J. (2008): Fundamentals of Geomorphology, Routledge, London and New York.
6. Goudie A.S. (2004): Encyclopedia of Geomorphology, Routledge, London and New York.
7. Kale, V.S. and Gupta, A. (2010): Introduction to Geomorphology, Universities Press, Hyderabad
8. Migon, P. (2010): Geomorphological Landscapes of the World, Springer, London/New York.
9. Ollier, C.D. (1981): Tectonics and Landforms, Longman, London.
10. Singh, S. (2011): Geomorphology, PrayagPustakBhawan, Allahabad.
11. Siddhartha, K. (2001): The Earth's dynamic surface, Kisalaya, Delhi.
12. Spark, B.W. (1972): Geomorphology, Longman, New York.
13. Steers, A. (1958): The Unstable Earth, Methuen, London.
14. Strahler, A.H. and Strahler, A.N. (1992): Modern Physical Geography, John Wiley, New York.

Mapping of Program Outcomes with Course Outcomes

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

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

Justification for Ratings:

PO1 (Critical and Creative Thinking): CO1, CO3, and CO4 are rated 3 as they involve analytical thought and critical evaluation of geological concepts, theories, and evidence. Other COs are rated lower as they may not directly involve critical and creative thinking skills.

PO2 (Communication Skill): CO1, CO2, and CO3 are rated 2 as they require effective communication of geological concepts and theories. Other COs are rated lower as they may not directly involve communication skills.

PO3 (Multicultural Competence): None of the COs directly relate to multicultural competence, hence rated 0.

PO4 (Research Skills): CO1, CO3, and CO4 are rated 2 as they involve research-related skills such as observation, inquiry, and hypothesis formulation. Other COs are rated lower as they may not directly involve research skills.

PO5 (Environmental awareness): CO4 and CO5 are rated 3 as they directly involve environmental awareness and knowledge of environmental processes. Other COs are rated lower as they may not directly involve environmental awareness.

PO6 (Problem-solving Abilities): CO4, CO5, and CO6 are rated 1 as they involve identifying and addressing complex challenges related to geological and environmental processes. Other COs are rated lower as they may not directly involve problem-solving abilities.

PO7 (Collaboration and Teamwork): CO6 and CO7 are rated 2 as they involve collaboration in discussing and analyzing geological and environmental processes. Other COs are rated lower as they may not directly involve collaboration and teamwork.

PO8 (Value inculcation): None of the COs directly relate to value inculcation, hence rated 0.

PO9 (Digital and technological skills): None of the COs directly relate to digital and technological skills, hence rated 0.

PO10 (Community Engagement and Service): None of the COs directly relate to community engagement and service, hence rated 0.

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Major Mandatory (Theory)
Course Code	: GEO-202- MJM
Course Title	: Fundamental of Oceanography
No. of Credits	02
No. of Lectures	: 30

Course Objectives:

1. To understand the basic knowledge of Oceanography.
2. To study coastal geomorphology by focusing on how coastal regions are formed.
3. To study processes of waves, tides, and streams go through to create boulders, coral
4. To understand importance of coastal zone with future resources approach.
5. To know the geological, physical, chemical and biological features and process that affect the surface of the ocean.
6. To differentiate between underwater formation, sea water formations, sea water composition and qualities.
7. To develop an appreciation for the diversity and importance of life in the ocean.

Course Outcomes:

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

CO1. Understand the diversity and importance of life in the ocean

CO2. Understand the various processes related to oceanography

CO3. Understand the relationship between man and the ocean.

CO4. Identifies physical features of the sea floor such as its topography, sediment type and distribution or available resources.

CO5. Describe the properties of water, emphasizing how these properties change in presence of salt.

CO6. Evaluate threats to marine or coastal environment.

CO7.Evaluate the importance of ocean in the life

Topics and Learning Points

UNIT 1: Introduction to Oceanography	Teaching Hours
1.1 Definition and Meaning of Oceanography	10
1.2 Principles Nature and Scope of Oceanography	
1.3 Age and origin of Oceans	
UNIT2: Ocean Waves and Tides	10
2.1 Definition and terms	
2.2 Wave Theories	
2.3 Classification of Waves and Tides	
2.4 Tidal Currents, Rip Currents	
UNIT 3: The Ocean	10
3.1 Continental Margin: Continental shelves and slopes	
3.2 Oceanic Ridges and Rises	
3.3 Abyssal Plains, Oceanic Trenches	
3.4 Coral Reefs and Atolls	

References:

1. Basu S.K. (2003) (ed): Handbook of Oceanography, Global Vision, Delhi.
2. Davis Richard A. (1972): Oceanography, Addition Wesley Publishing Co.
3. Garrison Tom (1999): Oceanography, Brooks/ Cole Wadsworth, New York.
4. Garrison Tom (2004): Essentials of Oceanography. Thompson, Australia.
5. Grant Gross M. (1982): Oceanography, Prentice hall, Ince, New Jersey.
6. King Cuchlain A. M (1962): Oceanography for Geographers (ED) Edward Arnold.

7. Sharma & Vatal (1962): Oceanography for Geographers. Chaitanya Publishing House, Allahabad
8. Thurman Harold V. (1985): Introductory Oceanography. Bell & Howell Co. London.
9. Weisberg J. and Howard P. (1974): Introductory Oceanography. McGraw Hill, Kogakusha, Tokyo.

Choice Based Credit System Syllabus NEP Pattern-2023

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.

Subject: Geography

Course: Fundamentals of Oceanography

Course Code: GEO 202 MJM

Weightage: 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	1			1						
CO 2	1			2						
CO 3		2								
CO 4	2			1		1				
CO 5	2			1		2				
CO 6	3			2	1	3		2		2
CO 7		2						1		3

Justification for the mapping

PO1-Critical and Creative Thinking:

This aligns with CO1, CO2, CO4, CO5, and CO6. Critical thinking skills are essential for understanding the diversity and importance of life in the ocean, various oceanographic processes, physical features of the sea floor, properties of water, and evaluating threats to marine environments.

PO2-Communication Skills:

This corresponds to CO3 and CO7. Communication skills are necessary to understand and convey the relationship between humanity and the ocean, as well as the importance of the ocean in sustaining life.

PO3- Multicultural Competences:

While not explicitly addressed in the COs listed, multicultural competences may be relevant when discussing the diverse cultural connections to the ocean and the importance of understanding different cultural perspectives on marine environments.

PO4- Research Skills:

This relates to CO1, CO2, CO4, CO5, and CO6. Research skills are essential for understanding the diversity of life in the ocean, oceanographic processes, physical features of the sea floor, properties of water, and evaluating threats to marine environments.

PO5-Environmental Awareness:

This aligns with CO6, where students evaluate threats to marine or coastal environments, fostering an understanding of environmental issues related to the ocean.

PO6-Problem Solving Abilities:

This corresponds to CO4, CO5, and CO6. Problem-solving abilities are required to identify physical features of the sea floor, describe properties of water, and evaluate threats to marine environments.

PO7-Collaboration and Teamwork:

While not explicitly addressed in the COs listed, collaboration and teamwork skills may be developed through group projects, discussions, and fieldwork activities related to oceanography.

PO8-Value Inculcation:

This can be integrated throughout the course, emphasizing the importance of valuing and preserving marine environments and resources (CO6, CO7).

PO9-Digital and Technological Skills:

While not explicitly addressed in the COs listed, digital and technological skills may be integrated into various aspects of the course, such as using technology for data collection, analysis, and presentation (e.g., mapping oceanographic data).

PO10-Community Engagement and Service:

This aligns with CO6 and CO7, where students evaluate threats to marine environments and recognize the importance of the ocean in sustaining life, fostering an understanding of the need for community engagement and service in protecting marine ecosystems.

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Major Mandatory (Theory)
Course Code	: GEO-203- MJM
Course Title	: Disaster Management
No. of Credits	02
No. of Lectures	30

Course Objectives:

1. To introduce students to the fundamental concepts of geography in relation to disaster management.
2. Students will learn about the nature of disasters their causes and impacts.
3. The course will also explore the role of geography in disaster management, including hazard mapping, risk assessment, and emergency response planning.
4. Students will learn about the impacts of disasters on people and the environment, and
5. The course will also cover the role of government agencies, NGOs, and communities
6. Students should learn about the psychological and emotional impacts of disasters on individual and communities.
7. Students should learn methods for assessing the risks associated with different types of Disasters.

Course Outcomes:

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

- CO1.** Understand the basic concepts of geography related to disaster management.
- CO2.** Analyze the relationship between physical geography and natural disasters.
- CO3.** Explore the impact of human activities on natural disasters.
- CO4.** Learn about local disaster and risk assessment.
- CO5.** Understand the role of geospatial technologies in disaster management.

CO6. Understand the role of government agencies, NGOs, and communities in disaster

Management.

CO7.Evaluate the Causes and impacts of disasters.

Topics and Learning points

Unit 1: Introduction to Disaster Management and Geography	Teaching Hours
1.1. Definition of hazard and disaster, Types of Disasters	10
1.2. Introduction to Disaster Management Cycle	
1.3. Role of geography in disaster management	
1.4. Global and regional trends in disasters	
Unit 2: Natural and Manmade Disasters	10
2.1. Tectonic hazards: earthquake	
2.2. Climatic hazards: Cyclone, floods and droughts	
2.3. Geomorphic hazards: landslides and avalanches	
2.4. Human-induced hazards: industrial accidents, oil spills, and nuclear disasters	
2.5. Global warming and Climate change	
Unit 3: Government Agencies, NGOs, and Communities in Disaster Management	10
3.1. Role of government agencies in disaster management	
3.2. Role of NGOs in disaster management	
3.3. Role of communities in disaster management	
3.4. Role of Students in Disaster management	

Reference:

1. Saptarshi P. G., More J. C., Ugale V. R. (2009), "Geography and Natural Hazard"
Diamond, Pune.
2. Savindra Singh, (2000): Environmental Geography. Prayag Pustak Bhavan, Allahabad
3. Singh, S., 1998. Geomorphology, Prayag Pustak Bhavan, Allahabad.
4. A.H.Choudhar ,P.N.Salve, S.M.Kadam.R.H.Choudhar,V.C.Ithape (2010),
"Contemporary Issues and Geography",Atharva ,Pune.

Choice Based Credit System Syllabus NEP Pattern-2023

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.

Subject: Geography

Course: Disaster Management

Course Code: GEO 203 MJM

Weightage: 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	2									
CO 2				2	1					
CO 3		3	2					3		
CO 4	3			2		2				
CO 5									3	
CO 6			3				2			2
CO 7	2	1								

Justification for the mapping

PO1-Critical and creative thinking:

CO1-Understanding assessment of spatial patterns, vulnerabilities, risks, and interconnections but also stimulates creative thinking by generating innovative solutions tailored to diverse geographic contexts. CO4-learning about local disaster and risk assessment stimulates critical and creative thinking skills. CO7-Evaluating the causes and impacts of disasters stimulates critical thinking by analyzing complex factors, assessing evidence, and identifying root causes.

PO2- Communication skill

CO3- Exploring the impact of human activities on natural disasters. CO7- Evaluating the causes and impacts of disasters offers valuable opportunities.

PO3- Multicultural competences:

CO3- exploring the impact of human activities on natural disasters is instrumental in developing multicultural competence. CO6- understanding the role of government agencies, NGOs, and communities in disaster management is essential for developing multicultural competence.

PO4- Research skills:

CO2-Developing research skills in data collection, literature review, hypothesis formulation, data analysis, fieldwork and observation, interdisciplinary collaboration, and critical evaluation.

CO4- developing research skills in data collection and analysis, literature review, fieldwork and observation, risk mapping and visualization, stakeholder engagement and collaboration.

PO5- Environmental awareness:

CO2-Understanding of natural processes, recognizing environmental vulnerabilities, appreciating ecosystem services, understanding human-environment interactions, promoting mitigation and adaptation strategies.

PO6-Problem-solving abilities:

CO4 - Fostering analytical thinking, critical reasoning, creative innovation, stakeholder engagement, and adaptability.

PO7- Collaboration and teamwork:

CO6- Understanding the role of government agencies, NGOs, and communities in disaster management is essential for promoting collaboration and teamwork by facilitating partnerships, coordinating efforts, pooling resources, sharing information and expertise, engaging communities, promoting accountability and transparency.

PO8- Value inculcation:

CO3- Exploring the impact of human activities on natural disasters can help inculcate values.

PO9-Digital and technological skills:

CO5-Understanding the role of geospatial technologies in disaster management.

PO10- Community engagement and service:

CO6- Disaster management promotes community engagement and service by empowering communities, building partnerships, enhancing communication and coordination.

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Major Mandatory (Practical)
Course Code	: GEO 204 MJM
Course Title	: Practical in Scale and Projection
No. of Credits	02
No. of Lectures	60

Learning Objectives:

1. Students will understand definitions, elements, classification and use of maps.
2. Students will well aware about types of map scale.
3. Students will able to convert a map scale from one scale to another in metric and British measurement systems.
4. To enable the students to use various Projections and Cartographic Techniques.
5. To acquaint the students with basic of Statistical data.
6. To acquaint the students with the principles of surveying, its importance and utility in the geographical study.
7. Justify the choice of map projection for specific mapping projects based on criteria such as accuracy, scale, and audience.

Learning Outcomes:

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

CO1: Interpret and understand different types of map scales including verbal, graphic, and fractional scales.

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO3: Understand the concept of map projection and its application in cartography.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

CO5: Evaluate the impact of distortion in map projections on different map properties such as area, shape, distance, and direction.

CO6: Analyze the advantages and limitations of different map projections in preserving spatial relationships.

CO7: Demonstrate proficiency in using GIS software to adjust map scales and transform projections. Convert spatial data between different coordinate systems and map projections accurately.

Topics and Learning points

Unit 1: Map Scales	Teaching Hours
1.1 Map Scale: Definition and Types	20
1.2 Conversion of Verbal scale to numeric and vice-versa (in British and Metric Systems)	
1.3 Construction simple graphical scale	
1.4 Construction comparative graphical scale	
Unit 2: Introduction to Map Projection	10
2.1 Definition and need of Map Projection	
2.2 Basic Concepts of Projection: Latitude, Longitude, Parallel of latitude,	
2.3 Meridian of longitude, Prime meridian, Equator, Direction, Calculation of time basis on meridian and GMT (Calculation of minimum two examples)	
2.4 Classification of map projection based on method of construction developable surfaces used	
Unit 3: Construction of Map Projection	30
3.1 Zenithal Polar Gnomonic Projection	
3.2 Conical Projection with one standard parallel	
3.3 Mercator's Projection	
3.4 Mollweide's Projection	
3.5 Universe Transverse Mercator projection	

Reference Books & Websites:

Singh Lehraj, (1973) : Map Work and Practical Geography, Central Book Depot Allahabad

D. Y. Ahirrao and E. K. Karanjkehe, (2002) : Pratyakshik Bhugol, Sudarshan –Nashik

P. G. Saptarshi and S. R. Jog, Statistical Methods

S. N. Karlekar, (2008) : Statistical Methods, Diamond – Pune

T. P. Kanetkar and S. V. Kulkarni, (1986) : Surveying and Leveling, Pune Vidyarthi Griha Prakashan– Pune

Arjun Kumbhare, Practical Geography

Pijushkanti Saha & Partha Basu. (2007), ‘Advanced Practical Geography’, Books and Allied (P) Ltd, Kolkata

Choice Based Credit System Syllabus NEP Pattern-2023

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.

Subject: Geography

Course: Practical in Scale and Projection

Course Code: GEO 204 MJM

Weightage: 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1										
CO 2	1	2		2	1	1				
CO 3										
CO 4	1	2		2	1	2				
CO 5	1					1				
CO 6	2					1				
CO 7				1		2	2		2	

Justification for the mapping

PO1 Critical and Creative Thinking:

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

CO5: Evaluate the impact of distortion in map projections on different map properties such as area, shape, distance, and direction.

CO6: Analyze the advantages and limitations of different map projections in preserving spatial relationships.

PO2 Communication Skill:

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

PO3 Multicultural Competence:

No direct mapping identified.

PO4 Research Skills:

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

CO7: Demonstrate proficiency in using GIS software to adjust map scales and transform projections. Convert spatial data between different coordinate systems and map projections accurately.

PO5 Environmental awareness:

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

PO6 Problem-solving Abilities:

CO2: Calculate scale conversions accurately to represent real-world distances on maps.

CO4: Identify and select appropriate map projections based on specific mapping requirements and objectives.

CO5: Evaluate the impact of distortion in map projections on different map properties such as area, shape, distance, and direction.

CO6: Analyze the advantages and limitations of different map projections in preserving spatial relationships.

CO7: Demonstrate proficiency in using GIS software to adjust map scales and transform projections. Convert spatial data between different coordinate systems and map projections accurately.

PO7 Collaboration and Teamwork:

CO7: Demonstrate proficiency in using GIS software to adjust map scales and transform projections. Convert spatial data between different coordinate systems and map projections accurately.

PO8 Value inculcation:

No direct mapping identified.

PO9 Digital and technological skills:

CO7: Demonstrate proficiency in using GIS software to adjust map scales and transform projections. Convert spatial data between different coordinate systems and map projections accurately.

PO10 Community Engagement and Service:

No direct mapping identified.

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Minor (Theory)
Course Code	: GEO-211- MN
Course Title	: Geography of India
No. of Credits	02
No. of Lectures	30

Course Objectives:

1. To make students well aware of the basic concepts of human geography.
2. To understand the Demographic Transition Theory and basic concepts related to the population with special reference to India.
3. To acquaint the knowledge of types and patterns of rural settlement.
4. To recognize the concept of urbanization with special reference to Maharashtra and India.
5. To understand economic sector available in India.
6. To recognize factors affecting location of industries.
7. To study major types of industries in India.

Course Outcomes:

By the end of this course students will able to :

- CO1.** Know about the location and extent of India.
- CO2.** Know salient features of the India.
- CO3.** Understand physiographic of India.
- CO4.** Familiarize with the climatic characteristics and importance of the country.
- CO5.** Aware of the drainage pattern in the view of sustainable development
- CO6.** Well aware of the adjoin countries of India and their relation.
- CO7.** Understand difference between Himalayan and peninsular drainage system.

Topics and Learning points	
Unit 1: Location and Physiography of India	Teaching Hours
1.1 Location and extent of India: Absolute and Relative	10
1.2 Neighboring countries of India	
1.3 Physiographic divisions of India and their characteristics and importance	
i. The Northern Mountain	
ii. The Northern Plains	
iii. The Peninsular Plateau	
iv. The Coastal Plains	
v. The Islands	
Unit 2: Drainage System	10
2.1 Meaning, Definition and Concept of Drainage System	
2.2 The Himalayan River System	
i. East flowing rivers (Ganga, Brahmaputra)	
ii. West flowing rivers (Indus)	
2.3 The Peninsular River System	
i. East flowing rivers (Godavari, Krishna and Mahanadi)	
ii. West flowing rivers (Narmada and Tapi)	
Unit 3: Climate	10
3.1 Main seasons and associated weather conditions	
i. The winter	
ii. The summer	
iii. The rainy/ monsoon	
iv. The retreat of monsoon	
3.2 Monsoon: Origin and Mechanism	
3.3 El- Nino and La- Nina	
i. Concept and mechanism	
ii. Impact on Indian monsoon	

Reference:

1. Khullar R. D. (2007): India- A Compressive Geography, Kalayani Publisher.
2. Aher A.B, Chaodhari A. P & Chaodhari Archna. Regional Geography of India Prashant Publication Jalgaon 2015.
3. Khullar, D. R. (2006): India. A Comprehensive Geography. Kalyani Publishers., New Delhi.
4. Krishnan, M. S. (1968): Geology of India and Burma. 4th edition. Higgin Bothams Private. Ltd., Madras
5. Nag, P. and Gupta S. S. (1992): Geography of India. Concept Publishing. Company, New Delhi.
6. Singh, R. L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi.

Choice Based Credit System NEP Syllabus (2023 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.

Subject: Geography

Course: Geography of India

Course Code: GEO-211-MN

Weightage: 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1		2	2							
CO 2				2						
CO 3							3			
CO 4				2						
CO 5				2						
CO 6				1						
CO 7				2						

Justification for the mapping

PO 2: Effective Citizenship and Ethics:

CO1- Understanding India's location, extent, and relationships with neighboring countries is essential for effective citizenship and ethical considerations in regional and international affairs. Effective citizens can play a significant role in promoting peace, cooperation, and ethical practices in India's interactions with its neighbors.

PO 3: Social Competence:

CO1- Having knowledge of India's geography and its relationships with neighbouring countries is a critical aspect of social competence. It helps individuals navigate cultural diversity, engage effectively in international relations, promote peaceful solutions to conflicts, and foster cross-cultural understanding, which are all essential components of social competence in an increasingly interconnected world.

PO 4: Disciplinary Knowledge:

CO 2- Understanding the geological structure and physiographic divisions of India is a fundamental aspect of disciplinary knowledge in geography. This knowledge forms the foundation for comprehending India's landforms, natural resources, and environmental processes.

CO 4 - knowledge of India's drainage basin, major rivers, and their tributaries is a critical component of disciplinary knowledge in geography. It enables students to analyze hydrological, environmental, cultural, and developmental aspects related to the country's river systems.

CO 5 The mechanism of the monsoon, along with its active and break periods, is a vital component of disciplinary knowledge in geography. It provides a basis for understanding the climatic, environmental, and societal aspects of this significant meteorological phenomenon in the Indian subcontinent and other regions affected by monsoons.

CO 6 The distribution of soil and forest cover in India is a vital component of disciplinary knowledge in geography. It provides a foundational understanding of the country's environmental diversity, ecosystems, and natural resource utilization, which are integral to various geographical subfields and critical for informed decision-making in land use and conservation.

CO 7- Types of minerals and energy resources in India are essential for geographical knowledge, particularly in the fields of resource geography, economic geography, environmental geography, energy geography, and geopolitics. These resources are vital for India's economic development, energy security, and environmental sustainability.

PO 7: Environment and Sustainability:

CO 3- Knowledge of India's climate and its impact on agriculture, the environment, and sustainability is integral to geographical studies. It informs agricultural practices, environmental conservation efforts, and sustainable development strategies, recognizing the role of climate in shaping India's geography and influencing the well-being of its people.

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Minor (Practical)
Course Code	: GEO-212- MN
Course Title	: Cartographic Techniques for Data Representation
No. of Credits	02
No. of Lectures	60

Course Objectives:

1. To understand concepts of the map, its types and uses.
2. To get knowledge of map scales and their types.
3. To get knowledge about cartographic techniques for different data representation.
4. To understand the quantitative and qualitative methods of data representation.
5. To make students aware of the importance and stages of research.
6. To develop knowledge related to presentation techniques by using cartographic techniques.
7. To give knowledge about cartographic techniques for different stream students.

Course Outcomes:

By the end of this course students will able to:

- CO1.** Understand the concept of maps and the types and uses of maps.
- CO2.** Acquaint with the knowledge of map scales and their types.
- CO3.** Understand the quantitative and qualitative methods of data representation.
- CO4.** Well aware of the presentation techniques and its importance.
- CO5.** Develop their presentation knowledge.
- CO6.** Improve their analysing techniques for data representation.
- CO7.** Aware about geographical phenomena after observing different data

Topics and Learning points

Unit 1: Map and Map Scale	Teaching Hours
1.1 Map: Definitions and Elements	20
1.2 Types of Maps	
1.3 Uses of Maps	
1.4 Map Scale: Definitions and Types	
Unit 2: Quantitative Methods of Data Representation	20
2.1 Simple and Multiple Line graph	
2.2 Simple, Multiple and Compound Bar graph	
2.3 Pie Chart	
Unit 3: Qualitative Methods of Data Representation	20
3.1 Symbol method	
3.2 Dot method	
3.3 Choropleth method	
3.4 Isopleths method	
3.5 Flow diagram	

Reference:

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 Geo visualization (3rd Edition), 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., New Delhi
6. Singh R. L. and Duttta P. K., 2012, Prayogatama Bhugol, Central Book Depot, Allahabad
7. Ahirrao Y., Karanjkehele E. K., 2002, Practical Geography, Sudarshan Publication, Nashik
8. Saptarshi P. G., Jog S. R., Statistical Methods.
9. Karlekar S. N., 2008, Statistical Methods, Diamond Publication, Pune.

Choice Based Credit System Syllabus NEP Pattern-2023

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.

Subject: Geography

Course: Cartographic Techniques for Data Representation Course Code: GEO 212 MN

Weightage: 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1				1						
CO 2						3				
CO 3				2						
CO 4									2	
CO 5		2							1	
CO 6	2					2				
CO 7	3									

Justification for the mapping

PO1-Critical and Creative Thinking :

CO7. Aware about geographical phenomena after observing different data

CO6. Improve their analyzing techniques for data representation

PO2- Communication Skill:

CO5. Develop their presentation knowledge

PO4-Research Skills :

CO1. Understand the concept of maps and the types and uses of maps

CO3. Understand the quantitative and qualitative methods of data representation

PO6-Problem Solving Abilities :

CO6. Improve their analyzing techniques for data representation

CO2-By understanding the role of map scales in shaping map representations and analysis results, cartographers can tackle complex spatial problems and produce high-quality maps that meet the needs of diverse users and applications.

PO9- Digital and Technological Skills:

CO4. Well aware of the presentation techniques and its importance

CO5. Develop their presentation knowledge

**CBCS Syllabus as per NEP 2020 for S.Y.B.A. Semester-III
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Open Elective
Course Code	: GEO-216- OE
Course Title	: Disaster Management
No. of Credits	02
No. of Lectures	30

Course Objectives:

1. To introduce students to the fundamental concepts of geography in relation to disaster management.
2. Students will learn about the nature of disasters, their causes, and impacts.
3. The course will also explore the role of geography in disaster management, including hazard mapping, risk assessment, and emergency response planning.
4. Students will learn about the impacts of disasters on people and the environment, and how geospatial technologies can be used to mitigate these impacts.
5. The course will also cover the role of government agencies, NGOs, and communities in disaster management.
6. Students should learn about the psychological and emotional impacts of disasters on individual and communities.
7. Students should learn methods for assessing the risks associated with different types of Disasters.

Course Outcomes:

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

- CO1.** Understand the basic concepts of geography related to disaster management.
- CO2.** Analyze the relationship between physical geography and natural disasters.

CO3. Explore the impact of human activities on natural disasters.

CO4. Learn about local disaster and risk assessment.

CO5. Understand the role of geospatial technologies in disaster management.

CO6. Understand the role of government agencies, NGOs, and communities in disaster management.

CO7. Evaluate the importance of ocean in the life.

Topics and Learning points

Unit 1: Introduction to Disaster Management and Geography	Teaching Hours
1.1. Definition of hazard and disaster, Types of Disasters	10
1.2. Introduction to Disaster Management Cycle	
1.3. Role of geography in disaster management	
1.4. Global and regional trends in disasters	
Unit 2: Natural and Manmade Disasters	10
2.1. Tectonic hazards: earthquake	
2.2. Climatic hazards: Cyclone, floods and droughts	
2.3. Geomorphic hazards: landslides and avalanches	
2.4. Human-induced hazards: industrial accidents, oil spills, and nuclear disasters	
2.5. Global warming and Climate change	
Unit 3: Government Agencies, NGOs, and Communities in Disaster Management	10
3.1. Role of government agencies in disaster management	
3.2. Role of NGOs in disaster management	
3.3. Role of communities in disaster management	
3.4. Role of Students in Disaster management	

Reference:

1. Susan L. Cutter, David A. Johnston, and Christopher T. Emrich.
2. Saptarshi P. G., More J. C., Ugale V. R. (2009), "Geography and Natural Hazard" Diamond, Pune.
3. Savindra Singh, (2000): Environmental Geography. Prayag Pustak Bhavan, Allahabad
4. Singh, S., 1998. Geomorphology, Prayag Pustak Bhavan, Allahabad.
5. A.H.Choudhar ,P.N.Salve, S.M.Kadam.R.H.Choudhar,V.C.Ithape (2010), "Contemporary Issues and Geography",Atharva ,Pune.

Choice Based Credit System Syllabus NEP Pattern-2023

Mapping of Program Outcomes with Course Outcomes**Class:** S.Y.B.A.**Subject:** Geography**Course:** Disaster Management**Course Code:** GEO 216 OE**Weightage:** 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	2									
CO 2				2	1					
CO 3		3	2					3		
CO 4	3			2		2				
CO 5									3	
CO 6			3				2			2
CO 7	2	1								

Justification for the mapping

PO1-Critical and creative thinking:

CO1-Understanding assessment of spatial patterns, vulnerabilities, risks, and interconnections but also stimulates creative thinking by generating innovative solutions tailored to diverse geographic contexts. CO4-learning about local disaster and risk assessment stimulates critical and creative thinking skills. CO7-Evaluating the causes and impacts of disasters stimulates critical thinking by analyzing complex factors, assessing evidence, and identifying root causes.

PO2- Communication skill

CO3- Exploring the impact of human activities on natural disasters. CO7- Evaluating the causes and impacts of disasters offers valuable opportunities.

PO3- Multicultural competences:

CO3- exploring the impact of human activities on natural disasters is instrumental in developing multicultural competence. CO6- understanding the role of government agencies, NGOs, and communities in disaster management is essential for developing multicultural competence.

PO4- Research skills:

CO2-Developing research skills in data collection, literature review, hypothesis formulation, data analysis, fieldwork and observation, interdisciplinary collaboration, and critical evaluation. CO4- developing research skills in data collection and analysis, literature review, fieldwork and observation, risk mapping and visualization, stakeholder engagement and collaboration.

PO5- Environmental awareness:

CO2-Understanding of natural processes, recognizing environmental vulnerabilities, appreciating ecosystem services, understanding human-environment interactions, promoting mitigation and adaptation strategies.

PO6-Problem-solving abilities:

CO4 - Fostering analytical thinking, critical reasoning, creative innovation, stakeholder engagement, and adaptability.

PO7- Collaboration and teamwork:

CO6- Understanding the role of government agencies, NGOs, and communities in disaster management is essential for promoting collaboration and teamwork by facilitating partnerships, coordinating efforts, pooling resources, sharing information and expertise, engaging communities, promoting accountability and transparency.

PO8- Value inculcation:

CO3- Exploring the impact of human activities on natural disasters can help inculcate values.

PO9-Digital and technological skills:

CO5-Understanding the role of geospatial technologies in disaster management.

PO10- Community engagement and service:

CO6- Disaster management promotes community engagement and service by empowering communities, building partnerships, enhancing communication and coordination.

**CBCS Syllabus as per NEP for FYBA
(2023 Pattern)**

Name of the Programme	: SYBA Geography
Programme Code	: UAGEO
Class	: SYBA
Semester	III
Course Type	: Major Mandatory (Theory)
Course Code	: GEO-221-VSC
Course Title	: Fundamentals of Remote Sensing (VSC)
No. of Credits	02
No. of Lectures	30

Course Objectives:

1. To understand the fundamental principles of remote sensing and its application in various fields.
2. To explore the historical development of remote sensing technologies and their impact on modern practices
3. To differentiate between active and passive remote sensing techniques and understand their respective advantages and limitations.
4. To comprehend the concept of map scale and its significance in interpreting satellite images.
5. To familiarize students with different types of remote sensing and their applications.
6. To familiarize the students with remote sensing principles, EMR, types and platform.
7. To develop proficiency in image classification techniques and their importance in remote sensing and GIS applications.

Course Outcomes:

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

- CO 1.** Demonstrate a thorough understanding of the fundamental principles of remote sensing and its application in fields such as agriculture, forestry, geology.
- CO 2.** Evaluate the historical development of remote sensing technologies and their impact on modern practices.
- CO 3.** Understand active and passive remote sensing techniques.
- CO 4.** Apply knowledge of map scale concepts to effectively interpret satellite Images.
- CO 5.** Analyze different types of remote sensing and their applications in remote sensing.
- CO 6.** Discuss the EMR, EMS and types of remote sensing.
- CO7.** Implement image classification techniques proficiently, understanding their significance in remote sensing.

Topics and Learning points

Unit 1: Introduction to Remote Sensing	Teaching Hours
1.1 Definition, Principle of Remote Sensing	08
1.2 History of Remote Sensing	
1.3 Types of Remote Sensing- Active & Passive	
1.4 Advantages of Remote Sensing	
Unit 2: Electromagnetic Energy	10
2.1 Stages in Remote Sensing	
2.2 Electromagnetic Radiation and Electromagnetic Spectrum	
2.3 Interaction of EMR with atmosphere- Scattering, Absorption	
2.4 Interaction of EMR with Earth's surface features- Reflection, Absorption, Emission and Transmission	
Unit 3: Remote Sensing Platform and Sensors	12
3.1 Types of platforms- Ground based, Air based, Space based	
3.2 Orbit- Geo-stationary and Sun-synchronous	
3.3 Sensors types and characteristics	

Reference:

1. Anji Reddy, M. (2004): Geoinformatics for environmental management. B.S. Publications
2. Chang.T. K. (2002): Geographic Information Systems. Tata Mc Graw Hill.
3. Heywood. I, Cornelius S, Crver Steve. (2003): An Introduction to Geographical Information Systems. Pearson Education
4. Sabins F.F Jr. (1987). Remote Sensing: Principles and Interpretation, W.H. Freeman & Co., New York.
5. James B. Campbell, Randolph H. Wynne, Valerie A. Thomas (2022). Introduction to Remote Sensing, Guilford Press, New York.
6. Alexey Bunkin and Konstantin Voliak (2001). Laser Remote Sensing of the Ocean, John Wiley and Sons, New York.
7. Gibso, P., and Clare H. Power, (2000). Introductory Remote Sensing: Principles and Concepts, Routledge, London
8. Hayesm L., (1991). Introduction to Remote Sensing, Taylor and Francis Publication, London.
9. Curran P.J (1985). Principles of Remote Sensing, Longman, London.
10. Kumaraswamy, K. (2003). Remote Sensing for Environmental Studies, Department of Geography, Bharathidasan University, Tiruchirappalli.

Choice Based Credit System Syllabus (2022 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S.Y.B.A.**Subject:** Geography**Course:** Fundamentals of Remote Sensing**Course Code:** GEO-221-VSC**Weightage:** 1= Weak or low relation , 2= Moderate or partial relation, 3= Strong or direct relation

Program Outcomes (POs)										
Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	2									
CO 2	2									
CO 3	2									
CO 4				2						
CO 5	2									
CO 6	2									
CO 7	2			2						

PO1: Critical and Creative Thinking:

CO1 to CO7 contribute to the Effective Citizenship and Ethics. For example,

CO1: Understanding Fundamental Principles: Demonstrating a thorough grasp involves critically analyzing key principles of remote sensing and discerning how they are applied in various fields like agriculture, forestry, and geology.

CO-2: Historical Development and Impact: Evaluating the historical trajectory involves critically examining the evolution of remote sensing technologies and discerning their profound impact on contemporary practices in different industries.

CO3: Understanding Fundamental Principles: Demonstrating a thorough grasp involves critically analyzing key principles of remote sensing and discerning how they are applied in various fields like agriculture, forestry, and geology.

CO-5: Analysis of Remote Sensing Types: Analyzing various types of remote sensing requires critical thinking to assess their unique characteristics, applications, and limitations across different contexts.

CO6: Electromagnetic Radiation (EMR) and Remote Sensing: Discussing EMR, EMS, and types of remote sensing involves critically evaluating the relationship between electromagnetic radiation and remote sensing technologies, understanding how different parts of the spectrum are utilized for various purposes.

CO-7: Image Classification Techniques: Implementing classification techniques proficiently involves critically assessing the significance of different methods in remote sensing, considering factors such as accuracy, computational complexity, and suitability for specific applications.

PO4: Research Skills:

CO4 and CO7 contribute to the Effective Citizenship and Ethics. For example, CO4 and CO7 require strong research skills grounded in critical thinking. This involves evaluating sources, analysing data quality, synthesizing information, conducting literature reviews, designing experiments, and interpreting research findings to advance knowledge and understanding in the field of remote sensing.