

As Per NEP 2020

University of Mumbai



Syllabus for Basket of OE	
Board of Studies in GEOGRAPHY	
UG Second Year Programme	
Semester - III	III
Title of Paper -	Credits
I) Introduction to Geoinformatics	2
From the Academic Year	2025/2026

Title of Paper:- Introduction to Geoinformatics

Sr. No.	Heading	Particulars
1	Description of the course : Including but not limited to :	The SYBA open elective course "Introduction to Geoinformatics" offers a basic yet insightful understanding of how modern technology and geography come together to study the earth and its features. It introduces students to essential tools like GIS (Geographic Information System), GPS (Global Positioning System), DGPS (Differential GPS), and Remote Sensing, which are used to collect, analyse, and interpret spatial data. These tools play a crucial role in understanding the physical world, making decisions based on location, and solving real-world problems through the use of maps, satellite images, and digital data. In today's world, Geoinformatics is gaining importance in almost every sector—from agriculture and urban planning to disaster management and transportation. With increasing focus on smart cities, climate change, and sustainable development, there is a growing need for professionals who can understand and use geospatial technologies. This subject helps students become familiar with the basics of satellite data, types of map-based information, and how GPS is applied in day-to-day life. It also introduces students to different data types, such as raster and vector, which are commonly used in digital maps and satellite images. The practical uses of this subject are many. For example, students learn how GPS helps in navigation, tracking, and location-based services like Google Maps. They also explore how remote sensing helps identify land use, forest cover, or disaster-prone areas using satellite imagery. Such skills are very relevant in solving real-life problems, especially in a country like India, where planning and managing resources is a constant challenge. Studying Geoinformatics opens up various career paths for students. Government departments, environmental organisations, private companies, and even research institutes are increasingly hiring people with geospatial knowledge. Students can work as GIS technicians, mapping analysts, remote sensing experts, or surveyors. Many job roles involve using maps and satellite data to assist in planning, monitoring, and decision-making. Even companies involved in logistics, e-commerce, and delivery services rely heavily on GPS and GIS, creating more job opportunities for students trained in this field.

2	Vertical :	Open Elective
3	Type :	Theory
4	Credit:	2 credits (1 credit = 15 Hours for Theory)
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: (List some of the course objectives.) 1. To acquaint the students with concepts of GIS GPS and DGPS. 2. To comprehend the passive and active Remote Sensing. 3. To recognise the fundamentals of GIS and their applications. 4. To understand the concept of raster and vector data.	
8	Course Outcomes: (List some of the course outcomes.) On successful completion of this course, students will be able to: 1. Understand the concepts of Geoinformatics and GIS. 2. Identify different components and functions of GIS, Remote Sensing, and GPS. 3. Know the geoinformatics tools for hazard assessment 4. Apply GPS for practical tasks such as navigation, geotagging, and tracking.	
9	Modules:-	
	Module 1: Introduction to Geoinformatics (15 hours)	
	1.1 Definition and Concepts of GIS, GPS and DGPS 1.2 Definition, Concepts and Types of Remote Sensing 1.3 Elements and Interpretation of Remotely Sensed Data 1.4 Significance of Geoinformatics	
	Module 2: Applications of Geoinformatics (15 hours)	
	2.1 Types of Data – Spatial and Nonspatial (Attribute) 2.2 Concept of Raster and Vector Data 2.3 Applications of GPS in Daily life 2.4 Geoinformatics in Hazard Assessment	
10	Text Books: 1. Sarkar, A. (2015). Practical Geography: A Systematic Approach. Orient Black Swan 2. डॉ. श्रीकांत कारलेकर, 'भौगोलिक माहिती प्रणाली' डायमंड पब्लिकेशन्स पुणे	
11	Reference Books: 1. Nag, P. (2008). Introduction to GIS. Concept Publishing. 2. Star J, and. J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersey. 3. Williams J. (1995): Geographic information from space, John Wiley and Sons, England,	

	4. ISRO's Bhuvan Portal: Indian Geo-platform for visualisation and data access.	
12	Internal Continuous Assessment: 40%	External, Semester End Examination Individual Passing in Internal and External Examination: 60%
13	Continuous Evaluation through: Quizzes, Class Tests, presentations, projects, role play, creative writing, assignments, etc.(at least 3) Internal Continuous Assessment of 20 Marks 1. One Assignment/Project work/Case study /Presentation /Seminar /Field visit report/Book review, etc., to be conducted in the given semester before the semester-end examination. (Marks – 10) 2. One online/ offline class test (Marks – 5) 3. Active participation in regular class instructional deliveries and fieldwork. & Overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organising environment-related activities (Marks – 5)	Semester-End Examination of 30 Marks 1. This examination shall be of a 1-hour duration. Maximum marks 30. 2. There shall be two questions, each of 15 marks. 3. All questions shall be compulsory with internal choice within the questions. (Each question will be of 15 marks with options.)
14	Format of Question Paper: For the final examination Q. 1. Based on Modules 1 & 2 (15 Marks) Q. 2. Based on Modules 3 & 4 (15 Marks)	

Sd/-

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Dr. Rajaram B. Patil
Board of Studies in
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