Government PG College, Ambala Cantt

Course File: 2023-24 Even Semester

Name of Professor: Ajay Chauhan

Class: M.Sc. Geography_4th Semester

Subject code and Name: Geog 405 A_ Fundamental of Geographical Information Systems (Theory)

SYLLABUS

Maximum Marks: 50 **External: 40**

Minimum Pass Marks: External 16 and Internal 4 **Internal: 10**

There will be seven questions in all. Question No.1 is compulsory and consists of 5 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each unit. The candidate shall attempt THREE long questions selecting at least one from each unit. All questions carry equal marks.

UNIT-I

1. GIS: concept, definition, and development.
2. Hardware and software requirements for GIS environment
3. Data for GIS: (i) Spatial data and their sources (ii) Non –spatial data and their sources; (iii) data structure: vector and raster
4. Data Base Management System; Sources of errors in GIS database.

UNIT-II

5. Map, scale, and map projection: Need of projection, spherical co-ordinate system and properties.
6. Integration of Remote Sensing data into GIS and its application in resource mapping, urban management and real time mapping.
7. Current issues in GIS.

Suggested Reading:

1. Ian Heywood, Sarah. C and Srinivaras Raju (2006), An Introduction to GIS, Peason Education, Delhi.
2. Prithvish Nag and Samita Sengupta (2007). GIS Concepts and Business opportunities, Concept publication, Delhi.
3. Jeffery Stare and John Estes (1990) Geographical Information Systems: An introduction, Prentice Mall.
4. Chrisman, Nicholas, (1997) Exploring GIS. John Wiley and Sore.
5. ESRI, (1997) Readings in: GIS at work in the Community.
6. ARC News, ESRI, Red Lands, California.
7. GIS World, Inc, Fort Collings, Colorado
8. D.J. Maguire, M.F. Goodchild and D.W. Rhind (1991), Geographical Information System: Principles and Applications, Longman Scientific and Technical.
9. T. Bernhardsen (1999), GIS: An Introduction, Wiley, New York.

COURSE OBJECTIVES

The course objectives outlined are as follows:

1. Understand GIS concepts and its development.
2. Identify hardware and software requirements for GIS.
3. Recognize spatial and non-spatial data sources and data structures in GIS.
4. Learn about Database Management Systems and sources of errors in GIS databases.
5. Understand maps, scale, and map projection principles.
6. Explore integrating Remote Sensing data into GIS for resource mapping and urban management.
7. Evaluate current issues in GIS, including data integration and ethical considerations.

Course Outcomes (COs)

1: Acquaintance with the fundamentals of Geographical Information Systems.
2: Capability to differentiate the data types in geographical information systems.
3: Understanding about different fundamentals concept which are essential for understanding of geographical information system is based such as DBMS, projection systems etc.
4: Knowledge about the applications of geographical information systems in resource mapping.

Lesson Plan

Sr. No	Topics	No. of Days	To be Completed up to	Activities
1	GIS: concept, definition, and development.	05	08 January	
2	Hardware and software requirements for GIS environment	06	18 January	Assignment 1
3	Data for GIS: (i) Spatial data and their sources (ii) Non –spatial data and their sources; (iii) data structure: vector and raster	08	01 February	Class Test1 Student's power point presentation
4	Data Base Management System; Sources of errors in GIS database.	10	21 February	Student's power point presentation
5	Map, scale, and map projection: Need of projection, spherical co-ordinate system and properties.	08	06 March	Assignment 2nd Student's power point presentation
6	Integration of Remote Sensing data into GIS and its application in resource mapping, urban management, and real time mapping.	10	01 April	Class Test2
7	Current issues in GIS.	05	09 April	
5	Revision	10	30 April Up to Exam	