

**GEOGRAPHIC INFORMATION SYSTEM**  
**CREDIT 2**  
**TOTAL MARKS 50**  
**COURSE CODE:**

**Course Definition:**

Geographic Information Systems (GIS) are instrumental in gathering, presenting, and assessing spatial data. They significantly enhance efficiency in storing, analyzing, and conveying information. GIS technology is experiencing rapid growth globally, owing to its ability to address diverse application areas effectively through appropriate datasets.

**Course Objectives:**

- To understand the Fundamentals of Geographic Information System.
- To learn the application of GIS

UNIT	NAME	CONTENTS	L	T	P
1	<b>Fundamentals of Geographic Information System</b>	a) Basic Concepts: Definition of GIS, Components of GIS, Advantage and Limitation of GIS and GIS Data: Spatial and Attribute Data, Analog vs. Digital data  b) Data Structures: Raster and Vector data structures, advantages and disadvantages	14	1	
2	<b>Applications of GIS</b>	a) Application of GIS in LULC, Disaster, Natural resource management and Crime	14	1	
			28	2	

**In-semester Examination 5 Marks, Internal Evaluation 5 Marks and End Semester 40 Marks**

**FUNDAMENTALS AND APPLICATIONS OF GIS**

**TEXT BOOKS:**

1. Anson, R.W. & Ormeling, F.J. (1993), Basic Cartography, Vol. 1, 2nd ed., Elsevier Applied Science Publishers, London.
2. Burrough, Peter A. and Rachael McDonnell, 1998, 'Principles of Geographical Information Systems' Oxford University Press, New York.
3. C.P.Lo and Albert K.W. Yeung 2005 "Concepts and Techniques of Geographic Information Systems" Prentice Hall of India, New Delhi.

- 4.Chakraborty and Sahoo, 2008, Fundamentals of Geographic Information Systems, Viva Books Private Limited, India
- 5.Magwire, D. J., Goodchild, M.F. and Rhind, D. M. Ed. 1991, 'Geographical Information Systems: Principles and Applications', Longman Group, U.K.
- 6.Robinson A.H. & Morrison J.L, (1995) Elements of Cartography, John Wiley & Sons

**REFERENCE BOOKS:**

- 1.Chaisman, N. 1992: Exploring Geographical Information Systems, John Wiley and Sons Inc., New York: 198p.
- 2.Chrisman, N.R. (1997) Exploring Geographic Information Systems. John Wiley and Sons.
- 3.DeMers, M.N., Fundamentals of geographic information system, Wiley, New York, 1997
- 4.ESRI (2004) ESRI Cartography: Capabilities and Trends, Redlands, CA, White Paper.
- 5.Foresman, T.W. (ed) History of GIS, Prentice-Hall, Upper saddle river, NJ, 1998
- 6.Harvey, F. 2008, A Primer of GIS: Fundamental Geographic and Cartographic Concepts, The Guilford Press, New York.
- 7.Humhold. W.E., 1991. An introduction to urban geographic information system, Oxford University press, New York
- 8.Ian Masser & Michael Blakemore., 1991, Handling Geographical Information: Methodology and Potential Applications, Ed.
- 9.Imus D. and Dunlavy P. (2002) Back to the Drawing Board: Cartography vs the Digital Workflow, MT, Hood, Oregon.
- 10.Kang-tsung Chang 2002, 'Introduction to Geographic Information Systems' Tata McGraw Hill, New Delhi.
- 11.Keates, J.S. (1973): Cartographic Design and production, London, Longman
- 12.MacEachren A.M. (1994) Some Truth with Maps: A Primer on Symbolization and Design, University Park: The Pennsylvania State University.
- 13.Maguire, D.J., Goodchild, M.F. and Rhind, D.W. (eds.) (1991) Geographical Information Systems: Principles and Applications. Avon, Longman Scientific and Technical.
- 14.Martin, D. (1991) Geographical Information Systems and their Socioeconomic Applications. London, Routledge.
- 15.Menno-Jan Kraak & Ferojan Ormeling, 2003, Cartography – Visualization of Geospatial data, 2nd Edn, Pearson Education Ltd.
- 16.Mishra, R.P. and A. Ramesh, Fundamentals of Cartography, Concept Publishing House, New Delhi – 110059
- 17.Monkhouse F.J. and Wilkinson, H.R. 1971: Maps and Diagrams: Their Compilation and Construction, B.I. Publications Private Limited, New Delhi: 527p.
- 18.Muralikrishna V., Geographical Information Systems and Remote Sensing Applications, Allied Publishers Private Limited.
- 19.Peterson, M.P. (1995) "Interactive and Animated Cartography" Upper Saddle River, NJ: Prentice Hall.
- 20.Peuquet, D.J. and Marble, D.F. (eds.) (1990) Introductory Readings in Geographic Information Systems. London, Taylor and Francis.
- 21.Ramesh, P. A. (2000): Fundamentals of Cartography, Concept Publishing Co., New Delhi.
- 22.Rampal, K.K. (1993): Mapping and Compilation, Concept Publishing Co., New Delhi.
- 23.Slocum T. (2003) Thematic Cartography and Geographic Visualization, Upper Saddle River, New Jersey: Prentice Hall.
- 24.Wilford J.N. (2000) The Mapmakers, Vintage Books.

