## GENERIC ELECTIVES (GE-09): SPATIAL INFORMATION TECHNOLOGY

### Credit distribution, Eligibility and Pre-requisites of the Course

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course | Department offering the course |
|---|---|---|---|---|---|---|---|
| | | Lecture | Tutorial | Practical/ Practice | | | |
| SPATIAL INFORMATION TECHNOLOGY | 4 | 3 | 1 | 0 | 12th Pass | NIL | GEOGRAPHY |

### Course Objectives:

1. The main objective of this course is to give students an insight on the concepts of spatial information technology.
2. The paper discusses the concept, historical developments, functioning and application of spatial information technology in detail.

### Learning Outcome:

1. Will be familiar with the concept, components of SIT.
2. Will gained knowledge on various data sources, structures, and their interpolation and modeling.
3. Will acquire in-depth knowledge of various functions applied in SIT.
4. Will gather detailed information on the application of SIT in various fields of mapping.

### SYLLABUS OF GE-09

**Unit-I: Introduction (5hrs):**

- Definitions, Concept, Components and Historical Development.

**Unit-II: Spatial Information/Data (10hrs):**

- Web data sources; Registration and projection; Data types structures; Data interpolation and modelling.

**Unit-III: Working on Spatial Information System (12hrs):**

- Data creation with GIS software, making layers, data editing and cleaning, spatial and non-spatial data linking, extracting information.

**Unit-IV: Functions of Spatial Information System (12hrs):**

- Overlay Analysis; Buffer Analysis, Network Analysis.

**Unit-V: Application (6hrs):**

- Application of Spatial Information Technology for sustainable development.

**Suggested Readings**


1. D. Tomlin. (1990). *Geographic Information Systems and Cartographic Modeling*.USA: Prentice-Hall, Englewood Cliffs, NJ, ISBN0-13-350927-3.
2. Esperança and Samet, H. (1997). *An overview of the spatial data base system, to appear in Communications of the ACM.* (http://www.cs.umd.edu/~hjs/pubs/sandprog.ps.gz)
3. Heywood, I., Comelius, S., and Carver, S. (1988). *An Introduction to Geographical Information Systems*. NewYork , USA: Addison Wiley Longmont.
4. Samet, H. (1990). *Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS*. USA: Addison-Wesley, Reading, MA, ISBN 0-201- 50300-0.
5. Samet, H. (1990). *The Design and Analysis of Spatial Data Structures*. USA: Addison-Wesley, Reading, MA, ISBN0-201-50255-0.
6. Samet, H. (1995). *Spatial Data Structures in Modern Database Systems: The Object Model, Interoperability, and Beyond*, W. Kim, (Ed.,) USA: Addison-Wesley/ACM Press, 361.
7. http://www.cs.umd.edu/~hjs/pubs/kim.ps
8. http://www.cs.umd.edu/~hjs/pubs/kim2.ps


**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**