

Course Name : Spatial Information System

Course Number : 457.313 Credit : 3

Schedule : Bd35, Rm

Lecturer : Kiyun Yu(Bd35, Rm406, 880-1355, kiyun@snu.ac.kr)

1. Summary of Course

In this course basic theory and application skills on how to collect, store, edit, analyze, and interpret results of spatial data(location and attribute data) are dealt with. Spatial data includes geographic features(mountains, streams, forest, farmland,...) and artificial features(buildings, transportation networks, SOC,...). Such spatial data consists of 3-D coordinates of locations and attributes describing appearances and states. To collect the spatial data various sensors of aerial camera, satellite imageries, and electro distance measurement systems are used. Then two different format, raster and vector, to store the data are applied which will lead to algorithmic analysis based on mathematics, statistics, and computer programming. Throughout this course, various spatial analysis methods to apply on urban planning, transportation, environmental protection, construction, and disaster managements will be studied.

2. Textbook and References

Text : 1. GIS Basics, Shahab Fazal, New Age International Publishers

Reference : 1. GIS course note (NECGIS)
(<http://www.e-gis.or.kr/>)

3. Lecture Schedule

Entire lecture will be divided into four parts. In part 1, basic theory of spatial informatics including definition, history and development, cartographic roots of GIS will be introduced. In part 2, spatial data

structure and models, nature and source of geographic data, real world model, uncertainty, generalization will be dealt with. In part 3, basic data models in GIS, coding digital maps, topology, vector and raster format, data compression, surface representation, geographic query and analysis will be dealt with. Lastly in part 4, selection of a GISs, future trends, LBS(location-based service), GIS project design and implementation will be studied.

4. Lab Exercise

Throughout this course, there will be lab exercises every week. During the lab, ArcGIS 9.x will be used. For the last 3-4 weeks students will make teams and conduct their team projects.

5. Miscellaneous

- Lecture notes and other information will be posted on
<http://etl.snu.ac.kr/>

6. Evaluation

Mid term exam 30% Final exam 50% Team Project 20%