

GEOG3202 Environmental GIS (6 credits)

Course Teacher: Professor P C Lai

Objectives

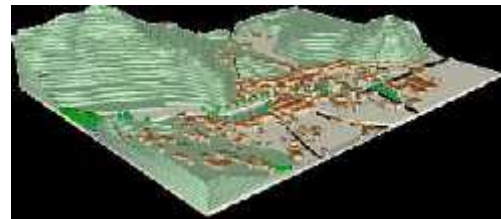
To stimulate interests in GIS activities that play a vital role in environmental applications.

Course Synopsis

This course introduces students to the methods of overlaying and merging of spatial data layers in environmental monitoring and decision-making. The principles of such an approach will be discussed focusing on the nature of environmental data (particularly the raster data structure and remote sensing images), data transformation and geocoding, 3D-modeling and visualization techniques, and accuracy evaluation of spatial databases. Students must complete a simple project embodying the application of the GIS concept in an environmental situation.

Lecture Topics

- Introduction to Information Systems
- Geodata Processing
- Environmental Modelling Procedures
- Data Reliability Issues
- Systems Implementation and Organizational Issues



Practicals

Two laboratory practicals and one project assignment (in 3 parts).



Assessment

Examination (1&1/2 hours) 40%; Coursework 60% (consists of 5 practicals).

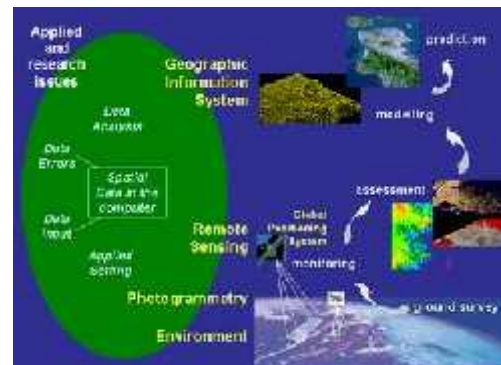
Learning Outcomes

Knowledge:

- Concepts in GIS and database management
- GIS functions and limitations
- Environmental data representation and reliability
- GIS requirements and environmental applications

Skills:

- GIS operational skills
- Database management skills
- Environmental modelling and presentation skills



Recommended Reading List

1. Brimicombe, A. (2010). *GIS, Environmental Modelling and Engineering*. 2nd Edition. Boca Raton: CRC Press. [Electronic Resource]
2. Kennedy, M. (2013). *Introducing Geographic Information Systems with ArcGIS: A Workbook Approach to Learning GIS*. Third edition. Hoboken, N.J.: John Wiley & sons, Inc. [Electronic Resource]
3. Nyerges, T.L., Jankowski, P. (2010). *Regional and Urban GIS: A Decision Support Approach*. New York: Guilford Press. [Electronic Resource]
4. Tomlin, D. (2013). *GIS and Cartographic Modelling*. Redlands, CA: ESRI Press.