Degree Applicable

Glendale Community College
October, 2008

COURSE OUTLINE

Architecture 113
Introduction to Geospatial Technology
for Architects and Engineers

I. Catalog Statement

Architecture 113 teaches the fundamentals of the Geographic Information System (GIS) software and its application in the Architectural and Engineering fields. Emphasis is placed on applied lessons to: create and modifying maps, solve spatial analysis problems, and import/export data for use with Computer Aided Design (CAD) software.

Units – 3.0
Lecture Hours– 2.0
Total Laboratory Hours – 4.0
(Faculty Laboratory Hours – 4.0 + Student Laboratory Hours – 0.0 = 4.0 Total Laboratory Hours)

Recommended Preparation: Engineering 109, Knowledge of Microsoft Excel

II. Course Entry Expectations

Skills Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

1. use GIS to produce various styles of maps;
2. gather and manipulate data from various sources;
3. import and export computer-aided-design data;
4. use data collected from Global Positioning System (GPS) and Remote-Sensing sources for inclusion in a map;
5. use GIS, GPS, CAD to solve an Architectural or Engineering spatial task.

IV. Course Outline

A. Introduction to Course — 3 hours
   1. Course expectations
   2. Grading
   3. Overview of tutorials and projects

B. ArcView User Interfaces — 24 hours
   1. Introduction to the ArcCatalog Software
   2. Introduction to the ArcMap Software
   3. Menus & Toolbars
   4. Viewports
   5. Navigating viewports
   6. Viewport customization
   7. Application settings

B. Collecting and Analyzing Data — 12 hours
   1. Mining data
   2. Analyzing data by attribute and location
   3. Using geodatabases

C. Digitizing & Geocoding — 24 hours
   1. Creating shapefiles
   2. Exporting shapefiles to a CAD system
   3. Using aerial photo and remote-sensed geographic imagery
   4. Geocoding data by zip code or address
   5. Performing spatial analysis tasks

D. Map Design — 15 hours
   1. Review of map projections
   2. Map components
   3. Choosing the appropriate map layout
   4. Adding graphics and picture files to maps
   5. Producing print layouts
   6. Output
      a. Printing
      b. Digital-Portable Document Format (PDF)

E. Global Positioning System (GPS) — 16 hours
   1. Review of technology
   2. Introduction to GPS equipment
   3. Introduction to GPS software
   4. Field exercises

F. Presentation of Final Project — 2 hours
   1. Portfolio review and critique
   2. Verbal and written final presentation

V. Methods of Presentation

The following instructional methodologies may be used in the course:

a. lecture;
b. multimedia;
c. guest speakers;
d. individual and group projects;
e. field trips;
f. field exercises.

VI. Assignments and Methods of Evaluation

1. Weekly projects.
2. Midterm examination.
3. Final individual project.
4. Final examination.

VII. Textbook

Gorr, W., GIS Tutorial: Workbook for ArcView 9.
Redlands: ESRI Press, 2005.
10th Grade Textbook Reading Level. ISBN: 1-58948-127-5.