University of Puerto Rico
Mayagüez Campus
College of Engineering

Syllabus & Instructor Information Sheet Form

A. COURSE SYLLABUS

1. General Information:

Course Number : INCI 4125
Course Tittle: Introduction to Land Information Systems
Credit Hours: 3

2. Course Description:

Methods for the acquisition and conversion of data to be used in a Land Information Systems (LIS) for later analysis. Different types of data structures, including data bases in a LIS. Analyze the benefits of establishing a LIS in Puerto Rico. Emphasis in vector-base systems. Observe the benefits of a land information system in Puerto Rico.

3. Pre-requisites: INCI 4002

4. Textbook, Supplies and Other Resources:

Geographic Information System: A Guide to the Technology, John C. Antenucci, Cay Brown, Peter L. Croswell, Michael J. Kevany, 1991, Van Nostrand, Reinhold.

5. Purpose :

To introduce the student to the technology of information systems, and their usefulness in the management of land, and utilities, and for their usefulness in research. Upon completion of this course the student should know what is a Land Information System, ways to gather graphical and attribute data, make the proper transformation to import into the system, how to make queries. He should also be able to make an analysis and propagation of errors.

6. Course Goals:

8. Laboratory/Field Work (If applicable) :

9. Department/Campus Policies:

9a. Class attendance: Class attendance is compulsory. The University of Puerto Rico, Mayagüez Campus, reserves the right to deal at any time with individual cases of non-attendance. Professors are expected to record the absences of their students. Frequent absences affect the final grade, and may even result in total loss of credits. Arranging to make up work missed because of legitimate class absence is the responsibility of the student. (Bulletin of Information Undergraduate Studies, pp 39, 1995-96)

9b. Absence from examinations: Students are required to attend all examinations. If a student is absent from an examination for a justificable reason acceptable to the professor, he or she will be given a special examination. Otherwise, he

or she will receive a grade of zero of "F" in the examination missed. (Bulletin of Information Undergraduate Studies, pp 39, 1995-96)

9c. Final examinations: Final written examinations must be given in all courses unless, in the judgment of the Dean, the nature of the subject makes it impracticable. Final examiantions scheduled by arrangements must be given during the examination period prescribed in the Academic Calendar, including Saturdays. (See Bulleting of Information Undergraduate Studies, pp39, 1995-96)

9d. Partial withdrawals: A student may withdraw from individual courses at any time during the term, but before the deadline established in the university Academic Calendar. (See Bulletin of Information Undergraduate Studies, pp 37, 1995-96)

9e. Complete withdrawals: A student may completely withdraw from the University of Puerto Rico, Mayagüez Campus, at any time up to the last day of classes. (See Bulletin of Information Undergraduate Studies, pp 37, 1995-96)

9f. Disabilities: All the reasonable accommodations acording to the Americans with Disability Act (ADA) Law will be coordinated with the Dean of Students and in accordance with the particular needs of the student.

9g. Ethics: Any academic fraud is subject to the disciplinary sanctions described in article 14 and 16 of the revised General Student Bylaws of the University of Puerto Rico contained in Certification 018-1997-98 of the Board of Trustees. The professor will follow the norms established in articles 1-5 of the Bylaws.

10. General Topics:

Lecture	Topic
1	Introduction
2	Definition of Information systems, and related terms
3	Coordinate systems: Geographic coordinates, UTM, State Plane Coordinate Systems
4	Coordinate transformations: conformal and affine transformations
5-6	Map projections
7	Data acquisition: R/S, photogrammetry, GPS, surveying
8	Data acquisition: digitizing existing maps, data already in digital form (DIM, TIGER, DLG)
9	**Examination I**
10	GIS structures
11	Vector based systems: "spaghetti" structures
12	Vector based systems: topology structures
13	Raster based systems

14	Conversion between raster and vector formats
15	Buffers zones
16	Database models: flat, relational, hierarchical, and object oriented
17	Database query languages
18	**Examination II**
19	Digital Terrain Models (DTM)
20	Types of networks, operating systems, GIS software, hardware
21	Discrete georeferencing
22	Accuracy of spatial database
23	**Examination III**
24-25	Title registration and indexing
25	Applications for a LIS
27-28	Case studies
29-30	Puerto Rico as a study for a LIS

Laboratory	**Topic**
1	Introduction to Laboratory
2	Coordinate transformations
3	Intersection of two lines
4-5	Digitalize a map or maps in layers
6	Polygon overlay operation, logical operators
7	Create attribute data
8-10	Referencing and linking attribute data which graphical ata
11-12	Create buffers for a site selection
13	Overlay operation
14-15	Create a DTM or TIN model

University of Puerto Rico
Mayagüez Campus
College of Engineering

B. INSTRUCTOR INFORMATION SHEET

1. General Information:

Instructor: José L. Flores
Title: Professor
Office:
Phone: 832-4040 Ext. 3295, 3014
Office Hours:
E-mail: flores@ce.uprm.edu

2. Course Description:

Course Number: INCI 4125
Course Title: Introduction to Land Information Systems
See element number 2 (Course Description) of Course Syllabus Section.

3. Purpose:

See element number 5 (Course Description) of Course Syllabus Section.

4. Course Goals:

See element number 6 (Course Description) of Course Syllabus Section.

5. Instructional Strategy:

6. Evaluation/Grade Reporting:

Three Partial Examinations	45%
One Final Examination	20%
Homework Assignment	10%
Computer Lab Assignment	20%

8. Deadlines for Assignments (Optional):

9. Student Assistance (If applicable):

10. Attendance and Behavior:

11. Course Outline and Schedule:

12. Additional References:

- Geographic Information Systems: Principles and Applications, A.S. P. R. S., 1991.
- The integration of remote sensing and GIS, A.S. P. R. S., 1992.
- Two 1hr. lecture periods and 2 hrs. laboratory periods.