

**University of Puerto Rico
Mayagüez Campus
College of Engineering**

Syllabus & Instructor Information Sheet Form

A. COURSE SYLLABUS

1. General Information:

Course Number: INCI 4081
Course Title: Photogrammetry I
Credit-Hours: 3

2. Course Description:

An introductory course in photogrammetry; geometry of vertical and near vertical aerial photos; scale determination, elevation by relief displacement; control and flight planning; geometry of stereo photos; parallax measurement; introduction to stereoplotters.

3. Pre-requisites: INCI 4002 or INCI 4135

4. Textbook, Supplies and Other Resources:

Paul Wolf, Elements of Photogrammetry, 2nd edition, McGraw Hill.

5. Purpose:

To acquaint the students with the techniques of photogrammetry, its applicability and limitations as an alternative to conventional surveying techniques.

6. Course Goals:

Upon completion of this course the student is expected to be able to:

- a- understand the task of photogrammetric
- b- have a basic knowledge of the principles of photogrammetry
- c- have a thorough knowledge of the electromagnetic spectrum with focus in the visible portion
- d- make use of existing photographs as a tool for difference application

7. Requirements:

All students are expected to:

- a- complete all lessons;
- b- do all of the laboratories, assigned reading and homework;
- c- come to class all the time and on time;
- d- pass all the tests to receive credit for the course.

8. Laboratory/Field Work (If applicable):

No laboratory or field work in this course.

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 justifiable 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 examinations scheduled by arrangements must be given during the examination period prescribed in the Academic Calendar, including Saturdays. (see Bulletin of Information Undergraduate Studies, pp 39, 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 according 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	Arts., Problems, Homeworks
1	Introduction	
2	Various types of photogrammetry and aerial photos	Chapter 1
3	Instruments used, measurements	Chapter 1
4	Aerial Cameras and Photography	Chapters 2, 3, 4
5	Review of optics and photography	Chapters 2, 3, 4
6	Parts and geometry of an aerial camera	Chapter 4
7	Aerial camera calibration	Chapter 4
8	Fiducial marks, measurement of coordinates	Chapters 4, 5
Lecture	Topic	Arts., Problems, Homeworks

9	Scales and comparators	Chapter 5
10	Refinement of photo coordinates	Chapter 5
11	Refinement of photo coordinates	Chapter 5
12	The geometry of a vertical photo	Chapter 6
13	Scales for even and uneven ground	Chapter 6
14	Determination of coordinates and distances	Chapter 6
15	Relief displacement, height determination	Chapter 6
16	Lab exercise	Chapters 1-6
17	Introduction to non-vertical photography	Chapter 11
18	Ground control for aerial photography	Chapter 15
19	Horizontal and vertical control requirements	Chapter 15
20	Flight planning, sidelap and overlap	Chapter 16
21	The C factor	Chapter 16
22	Examiantion I	
23	Stereoscopic viewing principles	Chapter 7
24	Stereoscopic and their use	Chapter 7
25	The vertical exaggeration phenomenon	Chapter 7
26	The geometry of a stereo pair	Chapter 8
27	Concept of horizontal parallax	Chapter 8
28	Stereoscopic parallax, establishing the Flight-line	Chapter 8
29	The principles of the floating point	Chapter 8

Lecture	Topic	Arts., Problems, Homeworks
30	The use of the parallax bar	Chapter 8

31	Parallax determination using other methods	Chapter 8
32	Derivation of parallax equation, determination of elevations	Chapter 8
33	Lab exercise	Chapters 7-8
34	Planimetric mapping – Radial line plotting	Chapter 9
35	Numerical and graphical radial triangulation	Chapter 9
36	Introduction to stereoplotters	Chapter 12
37	Components of a stereoplotter system	Chapter 12
38	Examination II	
39	Interior orientation	Chapter 12
40	Relative orientation	Chapter 12
41	Absolute orientation	Chapter 12
42	Map compilation	Chapter 12
43	Digital-Photogrammetry	Chapter 12
44	Introduction to orthophotography	Chapter 17
45	GPS Photogrammetry	

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B. Instructor Information Sheet

1. General Information:

Instructor: José F. Flores
Title: Assistant Professor
Office: CI-011C
Phone: 832-4040 Ext. 3295
Office Hours:
E-mail: flores@ce.uprm.edu

2. Course Description:

Course Number: INCI 4081
Course Title: Photogrammetry I
See element number 2 (Course Description) of Course Syllabus Section.

3. Purpose:

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

4. Course Goals:

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

5. Instructional Strategy:

Lectures complimented with visual presentations.

6. Evaluation/Grade Reporting:

2 partial examinations	40%
1 final examination	30%
Homework and Quiz exercises	15%
1 Project	15%

9. Deadlines for Assignments (Optional):

10. Student Assistance (If applicable):

11. Attendance and Behavior:

12. Instructor Responsibilities (If applicable):

13. Course Outline And Schedule:

14. Additional References:

F. Moffitt, Photogrammetry
B. Hallert, Photogrammetry
K. Schwidefsky, An Outline of Photogrammetry
ASPRS, Manual of Photogrammetry