

University of Puerto Rico  
Mayagüez Campus  
College of Engineering  
Department of Civil Engineering  
Master of Science in Civil Engineering

**Syllabus & Instructor Information Sheet Form**

**A. COURSE SYLLABUS**

**1. General Information:**

Course Number: INCI 6055  
Course Title: Construction Cost Estimates  
Credit-Hours: 3  
Contact Hours: 3 hrs. of lecture per week

**2. Course Description:**

Construction cost-estimating techniques including those used to prepare cost estimates during the different phases of the construction process, starting with the development of the concept up to the actual construction. Provide students with cost estimating skills and knowledge of how to estimate costs in a construction project.

**3. Pre-requisites:**

Authorization of the Director of the Department.

**4. Textbook, Supplies and Other Resources:**

*Textbook:*  
Construction Estimating Using Excel  
by Seven J. Peterson  
ISBN 0-13-171983-1  
Pearson/Prentice Hall, 2007  
Pearson Education Inc.  
Upper Saddle River,  
New Jersey 07458

**5. Course Goals:**

At the end of this course the student should be able to:

- Estimate costs of a project using cost Index, square foot method, unit of service method, parametric estimates and other methods.
- Prepare different types of cost estimates: unit price estimates, lump sum estimates.
- Prepare detailed estimates of material, labor, equipment, project indirect cost, recapitulation, company indirect cost, profit and contingency.
- Prepare construction cost estimates of building and engineering projects.
- Use the computer for cost estimating.

**6. Requirements:**

N/A

**7. Laboratory/Field Work (If applicable):**

Students are required to do the assignments requested by the instructor. These are designed to practice what is being taught in class.

**8. Minimum or Required Resources Available:**

The class will meet 3-4 times during the semester in the Computer-Aided Instruction Laboratory to learn and practice the use of the computer for cost estimating.

**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.

**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 or "F" in the examination missed.

**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.

**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, latest edition).

**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.

**9f. Disabilities:** According to Law 51, students will identify themselves with the institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students Office at (787)265-3862 or (787)832-4040 x3250 or 3258.

**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:

Topics	Time (Hrs)
Introduction to construction cost estimates	0.5
Need for cost estimates	0.25
Types of estimates	0.25
Construction Plan Reading and Units of Measure	2
Conceptual and Preliminary Cost Estimates	1
Assembly Cost Estimates	2
Detailed Cost Estimates	1
Unit Price and Lump Sum	1
Cost components	0.5
Labor and Labor Burden	0.5
Equipment	0.5
Materials	0.5
Subcontractors	0.5
Project Overhead	0.5
Indirect Cost and Profit	2
Computers for Cost Estimating	3
<b>Exam 1</b>	<b>1</b>
Estimating Earthmoving Quantities	3
Properties of Soils and Special Considerations	2
Mobilization, Clearing and Grubbing	1
Excavation	1
Structural Excavation	1
Mass Excavation	0.5
Trenching	0.5
Backfill	0.5
Dredging	0.5
Hauling	0.5
Compacting	0.5
Utilities	2
<b>Exam 2</b>	<b>1</b>
Concrete Construction	0.5
Forms	1

Reinforcing bars, wire mesh	1
SLabs, columns, beams, foundations	1
Piles	1
Other	0.5
Masonry	2
Carpentry	1
Steel Construction	2
<b>Exam 3</b>	<b>1</b>
Plumbing	1
Electrical	1
Finishes	2
	45 hrs

### 11. Instructional Strategy:

The course will be mainly lectures. Cooperative learning will be emphasized with team work assignments and/or projects.

### 12. Evaluation/Grade Reporting:

The suggested grading criteria for the course is as follows:

#### Grade Curve

Three partial exams = 60%.

The final examination = 20%

Class Project/Homework= 20%

**Total = 100%**

90 ≤ final average ≤ 100 = A

80 ≤ final average < 90 = B

70 ≤ final average < 80 = C

66 ≤ final average < 70 = D

66 > final average = F

Exams will be offered at class time or in the evening as indicated by instructor. The date and time of evening exams will be coordinated with students to avoid conflicts.

### 13. Additional References:

The listed references represent the most current publications on the topic available at the university's general library.

1. Peurifoy, R.L. and Oberlender, G.D. (1975)\*. *Estimating Construction Costs*, 3<sup>rd</sup> Edition. McGraw-Hill Book Company.
2. R.S. Means Co., (1997)\*. *Unit Price Estimating Methods*.
3. Nunnally, S.W. (2001). *Construction Methods and Management*, 5<sup>th</sup> Edition. Prentice Hall.
4. Dagostino, Frank R. (1999)\*. *Estimating in Building Construction*, 5<sup>th</sup> Edition. Regents Prentice Hall.
5. Dallavia, Louis (1957)\*. *Estimating General Construction Costs*, 2<sup>nd</sup> edition. F.W. Dodge Corp.

The following books are available at the Department of Civil Engineering and Surveying

1. Peurifoy, R.L. and Oberlender, G.D. (2002). *Estimating Construction Costs*, Fifth Edition. McGraw-Hill Book Company.
2. R.S. Means Co., (2002). *Unit Price Estimating Methods*.
3. Halpin, Daniel W. (1985)\*. *Financial and Cost Concepts for Construction Management*. John Wiley & Sons.
4. Nunnally, S.W. (2001). *Construction Methods and Management*, Second Edition. Prentice Hall.
5. Hilton, Joseph E. (1992)\*. *Simplified Estimating for Builders and Engineers*, Second Edition. Prentice Hall
6. Schuette, Stephe D. and Liska, Roger W. (1994)\*. *Building Construction Estimating*, First Edition, MacGraw-Hill.

\* No equivalent text books published on this topic within the last five years are available at the library. Requests for latest versions will be submitted.

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**B. INSTRUCTOR INFORMATION SHEET**

**1. General Information:**

Course Number: INCI 6055  
Course Title: Construction Cost Estimates  
Instructor: Dr. José F. Lluch  
Title: Professor  
Office: CI-207  
Phone: (787) 265-5423  
Office Hours:  
E-mail: [jlluch@uprm.edu](mailto:jlluch@uprm.edu)  
Internet page: <http://academic.uprm.edu/~jlluch/>

**2. Course Description:**

See element number 2 (Course Description) of Course Syllabus Section.

**3. Course Goals:**

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

**4. Instructional Strategy:**

See element number 11 (Instructional Strategy) of Course Syllabus Section.

**5. Evaluation/Grade Reporting:**

See element number 12 (Evaluation/Grade Reporting) of Course Syllabus Section.

**6. Deadlines for Assignments:**

All assignments must be turned in on the date indicated by the professor in the classroom. The homework must be submitted at the beginning of the class period.

**7. Student Assistance:**

See Department/Campus Policy (element 2) of Course Syllabus Section

**8. Attendance and Behavior:**

See Department/Campus Policy (element 2) of Course Syllabus Section

**9. Instructor Responsibilities:**

The professor is responsible for lecturing, grading and returning homework and exams on time, and assisting his students outside the classroom.

**10. Course Outline and Schedule:**

See General Topics (element 10) of Course Syllabus Section

**11. Additional References:**

See element number 13 (Additional References) of Course Syllabus Section.