



UNIVERSITY OF PUERTO RICO  
MAYAGÜEZ CAMPUS  
COLLEGE OF ENGINEERING  
INDUSTRIAL ENGINEERING DEPARTMENT



## COURSE SYLLABUS

### General Information

Course Number: ININ 4087  
Course Title: **Cost Management**  
Credit-Hours: Four

### Course Description

This course focuses on the techniques to estimate, manage, and control costs in engineering projects, service and manufacturing organizations. Course topics include value chain analysis, cost management systems, activity-based costing, budgeting, life cycle cost management, productivity measurement and strategic cost management, pricing, and profitability. Case studies will be discussed and students will use computer applications to solve problems.

### Pre-requisites

ININ 4010: Probability and Statistics for Engineers

### Course Objectives

At the completion of the course the student will be able to:

- Identify, calculate, and analyze different types of costs such as indirect, direct, variable, and fixed.
- Recognize and use modern cost analysis techniques such as activity-based costing, target costing, value engineering, and life-cycle costing.
- Select cost/price analysis techniques and methods required for the managerial decision-making process and perform critical analysis of the results.
- Evaluate the causes of reduced profits or high costs in products and services and suggest potential solutions.
- Design and manage modern cost management systems.
- Assess the different strategic uses of cost analysis including pricing strategies, and customer/product/process decisions.
- Summarize and effectively present cost/price analysis results to decision makers (in written and oral format).

### Requirements

All students are expected to:

- Complete all lessons.
- Do all assigned readings and related homework.
- Come to class prepared to participate in the discussion of issues or problems.
- Come to class all the time and on time.
- Pass all tests to receive credit for the course.

## Evaluation Strategies

	Quantity	Percent
Exams	0-4	50-80%
Final Exam	1	10-30%
Short Quizzes	0-10	10-50%
Oral Reports	0-1	5-10%
Monographies	0-1	5-10%
Portfolio		
Projects	0-1	10-30%
Journals		
Other, specify: Homework	0-10	10-15%
<b>TOTAL</b>		<b>100%</b>

## Department and Campus Policies

**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).

**Absence from examinations:** Students are required to attend all required 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).

**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).

**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).

**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).

**Disabilities:** After been identified with the professor and the institution, the students with disabilities will receive reasonable accommodations in their courses and evaluations. For more information, please contact *The Office of Quality of Life* at the Student Dean's Building, 787-265-5467 ó 787-832-4040 exts. 5467, 3107 ó 3894.

**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.

**Sexual Harassment: Certification 130-2014-2015 states:** Sexual harassment in the workplace and in the study environment is an illegal and discriminatory act and is against the best interests of the University of Puerto Rico. All persons who understand they have been subject to acts of sexual harassment at the University of Puerto Rico may file a complaint and request that the institution investigate, where necessary, and assume the corresponding action by the university authorities. If the complainant is a student, he or she must refer his or her complaint to the Office of the Student Ombudsperson or that of the Dean of Students.

**Hostigamiento Sexual: La Certificación 130-2014-2015, indica:** El hostigamiento sexual en el empleo y en el ambiente de estudio es una práctica ilegal y discriminatoria, ajena a los mejores intereses de la Universidad de Puerto Rico. Toda persona que entienda ha sido objeto de actuaciones constitutiva de hostigamiento sexual en la Universidad de Puerto Rico podrá quejarse para que se investigue, de ser necesario, y se tome la correspondiente acción por parte de las autoridades universitarias. Si quien reclama fuera estudiante, deberá referir su queja a la Oficina de la Procuradora Estudiantil o al Decanato de Estudiantes.

**Certification 36 (2018-2019): Discrimination by Sex and Gender on Modality of Sexual Violence:** "The University of Puerto Rico prohibits discrimination based on sex, sexual orientation, and gender identity in any of its forms, including that of sexual harassment. According to the Institutional Policy Against Sexual Harassment at the University of Puerto Rico, Certification Num. 130, 2014-2015 from the Board of Governors, any student subjected to acts constituting sexual harassment, may turn to the Office of the Student Ombudsperson, the Office of the Dean of Students, and/or the Coordinator of the Office of Compliance with Title IX for an orientation and/or formal complaint."

**Certification 06-43 of the Academic Senate states, "The academic guidelines for offering online courses," defines:** Traditional face-to-face courses are those that have less than 25% of the course's regular contact hours via the Internet. Therefore, a three-credit course will be considered "face to face" if, of the 45 hours of regular contact, 11 or less are taught via the Internet. According to certification 16-43 of the Academic Senate, a course may include up to 25% of its total contact hours via the Internet. The objective of this is so that all professors have this alternative in the case of any unscheduled eventuality.

**Law 51:** The Comprehensive Educational Services Act for People with disabilities states that after identifying with the instructor and the institution, the student with disabilities will receive reasonable accommodation in their courses and evaluations. For more information contact the Department of Counseling and Psychological services at the Office of the Dean of Students (Office DE 21) or call 787-265-3864 or 787-832-4040 x 3772, 2040 and 3864.

## General Topics

Outline	Contact Hours
<b>Part I: Foundation concepts</b>	
Introduction to cost management	2
Basic accounting and cost management concepts	4
Activity cost behavior	3
Cost-Volume-Profit Analysis	3
<b>Part II: Functional-based costing and control</b>	
Activity Based Costing	4
Product and service costing	5
Support department cost allocation	3
Budgeting for planning and control	3
Standard costing	3
<b>Part III: Activity and strategic based costing and control</b>	
Activity based management	6
Strategic cost management.	3
Quality cost management	1
Target Costing and Value Engineering	4
Productivity measurement and control	3
Environment Cost: Measurement and Control	3
<b>Part IV: Activity and strategic based decision making</b>	
Activity resource usage model and tactical decision making	3
Pricing and profitability analysis	3
Exams	4
<b>Total hours (equivalent to contact period)</b>	<b>60</b>