



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



COURSE SYLLABUS

General Information

Course Number: ININ 4007
Course Title: **Industrial Organization and Management**
Credit-Hours: Three

Course Description

Principles of design and control; decision models in engineering and industrial systems.

Prerequisites

MATE 3063 - Calculus III
ECON 3021 - Principles of Economics I

Textbook and References

1. Roberta (Robin) Russell, Bernard W. Taylor, **Operations Management: Creating Value along the Supply Chain**, 7th edition, John Wiley and Son.
2. Dilworth, J., Operations Management, 2nd Edition, McGraw Hill.
3. Newman, Lavelle and Eschenbach, Engineering Economic Analysis, 8th Edition, Engineering Press.
4. Nadler, G., Work Design: A Systems Concept, Homewood, IL: Richard D. Irwin.
5. Riggs, J. L., Economic and Decision Models, McGraw Hill.
6. Buffa, E. S., 1987, Modern Production/Operations Management, 9th Edition, John Wiley.
7. Sullivan, Wicks, and, Luxhoj, 2005, Engineering Economy, 13th edition, Prentice Hall.
8. Ravindran, A., Phillips, D. T., 1987, Operations Research: Principles and Practice, John Wiley.
9. Mayer, R. R., 1975, Production and Operation Management, 3rd Edition, McGraw Hill.
10. Riggs, J. L., Production Systems: Planning Analysis and Control, 3rd Edition, Waveland Press.

Purpose

This is a course for (non IE) majors in engineering. However, it is appropriate for anyone with interest in operations management in areas such as business, economics, computer science or applied mathematics. The purpose of the course is to prepare the student for solving typical management or industrial problems. Economic analysis will be emphasized. It is a requirement for some BSE programs.

Course Goals

- Present a clear overview of operations management.
- The student will:
 - be able to recognize, analyze, formulate, and solve basic managerial problems that can be solved using forecasting, scheduling and production management, layout, job design, and work measurement.
 - be able to perform economic evaluation of alternatives.
 - be able to understand methodologies, tools and techniques used in operations management.

Requirements

All students are expected to:

- Complete all lessons.
- Do all assigned readings and related homework.
- Come to class all the time and on time.
- Pass all tests to receive credit for the course.

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 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. (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: 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.

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.

Campus Resources

General Library and University Computer Center is available to obtain professors reference materials.

General Topics

<i>Lecture</i>	<i>Topic</i>	<i>Reading</i>
1	Introduction to Operations Management	TB: Chapter 1, Pages 2-21
2-5	Operations Strategy Engineering Cost/Breakeven	TB: Chapter 6, Pages 226-244
6-8	Forecasting	TB: Chapter 12, Pages 495-503; 512-516 & 527-529
9-11	Project Management/Scheduling	TB: Chapter 9, Pages 367-388
12	First Partial Exam	
13-16	Job Design & Work Measurement	TB: Chapter 8, Pages 332-338; 349-358
17-20	Facility Layout	TB: Chap 7, Pages 257-287
21-23	Inventory Management	TB: Chapter 13, Pages 553-573
27	Second Partial Exam	
29	Introduction to Engineering Economic Analysis	R3: Chapter 1, Pages 1-3
30	Cash Flow Diagrams and Interest and Equivalence	R3: Chapters 2 & 3, Pgs. 57-58 & 73-84
31-32	Operations Economy - Single Payment Compound Interest Formulas	R3: Chapter 3, Pages 85-93
33-34	Operations Economy - Uniform Series and Gradient Compound Interest Formulas	R3: Chapter 4, Pages 97-117
35-36	Nominal and Effective Interests	R3: Chapter 4, Pages 122-129
37	Third Partial Exam	
38-39	Comparison of Alternatives by NPW and EACF	R3: Chapters 5&6, Pgs. 167-183 & 207-218
40-41	Depreciation	R3: Chapter 10, Pages 365-371
42-43	After Tax Evaluations	R3: Chapter 11, Pages 405-416

Legend: TB – Textbook or reference #1, R3 – Reference #3

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