# New Jersey Institute of Technology

[Department of Mechanical and Industrial Engineering]

[IE 492] [Engineering Management]

**[Fall 2025]**

[Online Class]

**Instructor: Ikhmeis, Ph.D.IE**

[si8@njit.edu]

Office hours: [By email or Zoom meeting by appointment]

## Course Description

Introduction for engineering majors to the fundamentals of engineering economics and the management process for engineering and development. Major topics include capital investment justification methods, project organization, scheduling and control techniques, legal, quality, and staffing issues.

## Course Objectives

- Effectively apply knowledge of Engineering Management including Engineering Economics and Project Management in real-world situations.
- Identify, formulate, and solve engineering problems.
- Effectively function on multidisciplinary and virtual teams.
- Apply course learnings and modern – popular management tools to engineering practice.

## General Policies:

Students are responsible for reading the associated chapters and assigned materials and reviewing key concepts, terms, definitions, discussion questions, and topics in the chapters.

- No incomplete grade will be given
- No late submittal of assignments/exams, solution will be posted immediately on the due date of the assignment
- Students must submit all assignments/exams via Canvas only. Assignments attached to emails sent directly to the professor will not be accepted.

## Canvas

We are going to use Canvas throughout the semester to distribute all course material. Submissions are also going to be collected through Canvas. You can access your Canvas account with your UCID and password.

- Each week's contents are organized through modules.
- A module will include lecture notes, discussions, and homework, and any other resources available for the lecture on hand.

***Provided material on Canvas:*** PowerPoint Slides, Videos, Reading Material, Homework problems

**Course Structure**

- The course mode is Online

There are two parts to this course:

**I. Engineering Economics Section**

In this section selected chapters or topics will be covered in detail (for details see the lecture section):

- Interest Rates, Time Value of Money, Estimating Capital Projects, Economic Feasibility Analysis, Depreciation, and Decision

**II. Project Management Section**

will cover all phases of the project life cycle, starting from Project Selection, and Initiation through Project Closeout.

**Required Textbook**

- Project Management Institute, PMBOK Guide, 7th Edition, 2021.

- Schaum's Outline of Theory and Problems of Engineering Economics, McGraw-Hill, Sepulveda, J., Souder, W. and Gottfried, B.

**Refference Textbook**

An optional reference book that will serve as a good companion

- Successful Project Management by Gido and Clements.
- Engineering Economic Analysis by Newnan et al. 14$^{th}$ edition
  ISBN: 9780190931940

**Homework:**

This will be based on the course text and lecture. This is an individual effort and must be done without collaboration.

Homework will be submitted to the course NJIT canvas website before the day and time it is due with late submissions counted as zero.

**Exams:**

- There will be one midterm and one final exam
- All exams will be "online" and "controlled by LockDown Browser or Proctor U"
- A missed exam will be counted as a zero

This Will be based on the course text and lecture. This is an individual effort and must be done without collaboration.

Exams will be during a specified time interval, and no make-up exams will be given unless a note is received by the instructor from the Dean of Students office.

**Course Assessment Criteria**

- Homework, [10%]
- Quizzes, [10%]
- Midterm Exam [10/17/2025], [30%]
- Team Case Study Presentation, [12,12,2025[15%]
- Final Exam [12/19/2025], [35%]

Your final grade in the class will be determined based on the summation of the number of points that you acquire. The following point spread corresponds to the following grade.

| Total | < 50 | 50 | 65 | 75 | 85 | 90 |
|---|---|---|---|---|---|---|
| Grade | F | C | C+ | B | B+ | A |

**Students with disabilities**

Students with disabilities need accommodation of any nature so as to have a fair opportunity to perform in the class need to contact the counseling center. Staff at the counseling center will determine what constitutes a reasonable accommodation and inform the instructor of what it is.

**Academic Integrity**

**"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at**
*http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf* Links to an external site.**.**

*Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing, or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.*

| **[Week], Date (2025)** | **Topic / Reading Material** | Reading | Notes |
|---|---|---|---|
| **Part I** | **Selective topics "Engineering Economics"** | | |
| [1] 09/05 | Introduction: Making Economic Decisions<br><br>Review Basic Concepts and Annual Compounding | Ch. 1 & Ch2<br><br>Eng Eco Schaum's | |
| [2] 09/12 | Basic Relationships Algebraic Relationships, Discrete, Periodic Compounding | Ch. (3 & 4) | |
| [3] 09/19 | Continuous Compounding & Economic Equivalence and Valuation Evaluation Methodologies Continuous Compounding, Equivalence, MARR, FMV | Ch. (5 & 6) | |
| [4] 09/26 | Quiz 1 | | |
| [5] 10/03 | Evaluation Methodologies Present Worth, Future Worth, NPV, Rate of Return, Payback, ROI, Cost-Benefit Ratio, Budget Allocation | Ch. (7 & 8) | |
| [6] 10/10 | Economic Feasibility Analysis Project selection, Retirement and replacement decisions/economics, Depreciation | Ch. (9&10) | |
| [7] 10/17 | **Midterm Exam** | | |
| **Part II** | **Selective Topics "Project Management"** | | |

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|---|---|---|---|
| [8] 10/24 | PMBOK Guide Overview, Performance Domains – Stakeholder Performance, Team Performance, and Development Approach and Lifecycle Performance Domains, Artifacts | PMBOK guide – Body of Knowledge Chapter 1, 2.1 – 2.3, 4.6 | |
| [9] 10/31 | PMBOK Guide Overview, Performance Domains - Planning Performance, Project Work Performance, Delivery Performance Domains, Artifacts | PMBOK guide – Body of Knowledge Chapter 2.4 – 2.6, 4.6 | |
| [10] 11/07 | PMBOK Guide Overview, Performance Domains – Measurement Performance, Uncertainty Performance Domains, Tailoring, Artifacts | PMBOK guide – Body of Knowledge Chapter 2.7, 2.8, 4.6 | |
| [11] 11/14 | Quiz 2 | | |
| [12] 11/21 | PMBOK Guide Overview – Tailoring, Sponsor, PMO | PMBOK guide – Body of Knowledge Chapter 3, Appendix X2, Appendix X3 | |
| [13] 12/05 | Risk Management and Project Closeout | PMBOK | |
| [14] 12/12 | Case Study Presentation | | |
| [15] 12/19 | **Final Exam** | | |