# New Jersey Institute of Technology
# Department of Engineering Technology
# MNET 414 Industrial Cost Analysis

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| **COURSE NUMBER** | MNET 414 |
| **COURSE DESCRIPTION** | Industrial Cost Analysis |
| **COURSE STRUCTURE** | 3-0-3 (lecture hr/wk - lab hr/wk – course credits) |
| **COURSE COORDINATOR/ INSTRUCTOR** | Dr. S. Lieber/ A. Chaudhuri |
| **COURSE DESCRIPTION** | An introduction to general costing techniques. Time value of money concepts are introduced to decision-making matters such as equipment justification, design selection and fabrication costs. |
| **PREREQUISITE(S)** | None |
| **COREQUISITE(S)** | None |
| **REQUIRED MATERIALS** | Engineering Economic Analysis, Fouteenth Edition, by Donald G. Newnan et al, Oxford Press, ISBN: 9780190931919and Study Guide |
| **COMPUTER USAGE** | Spreadsheets |
| **COURSE OUTCOMES (CO)** | By the end of the course students should be able to:<br>1. Calculate industrial costs and benefits using a variety of techniques<br>2. Understand the importance of time-value of money in economic analyses and calculate its effects on investments and loans<br>3. Analyze realistic cost:benefit scenarios in typical industry problems<br>4. Evaluate economic alternatives considering the effects of depreciation and taxes<br>5. Parse complex real-world technical cost issues, identify and analyze cost reduction alternatives, and make an oral and written presentation to "management"<br>6. Demonstrated ability to read-ahead course materials in advance of class lecture, and report both key learnings and issues to instructor before class<br>7. Understand and practice how to recognize and analyze ethical issues |
| **CLASS TOPICS** | Making Economic Decisions, Engineering Costs and Cost Estimating, Interest & Equivalence, Interest Formulae, Present Worth Analysis, Annual Cash Flow Analysis, Rate of Return Analysis, Incremental Analysis, Other Analysis Techniques, Depreciation, Income Taxes, Ethics |
| **STUDENT OUTCOMES** | The Course Learning Outcomes support the achievement of the following MET Student Outcomes and TAC of ABET Criterion 9 requirements:<br><br>**Student Outcome 1 -** an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;<br>**Related CO – 1-5** |

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**Student Outcome 5** - an ability to function effectively as a member as well as a leader on technical teams.
**Related CO – 6-7**

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| **GRADING POLICY** | 3-Exams -30%; Final Exam - 30%;<br>HW/Quizzes - 20%; Special Project - 20% |
| **ACADEMIC INTEGRITY** | NJIT has a zero-tolerance policy regarding cheating of any kind. Student behavior that is disruptive to the learning environment will not be tolerated. Incidents will be reported to the Dean of Students. Honor Code violations may result in failure in the course, disciplinary probation, and/or expulsion from NJIT. Refer to http://www.njit.edu/academics/honorcode.php. |
| **STUDENT BEHAVIOR MODIFICATION TO COURSE** | Will be discussed in class<br>The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be consulted if any changes occur. . |
| **PREPARED BY**<br>**COURSE COORDINATED BY** | Ajit Chaudhuri<br>Dr. S. Lieber |

**CLASS HOURS**

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|---|---|---|
| Tuesday<br>Thursday | 2:30 PM to 3:50 PM | CKB 341 |

**OFFICE HOURS**

Before Class After Class or By Appointment:
Email chaudhur@njit.edu

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## GRADING LEGEND

| GRADE | NUMERIC RANGE |
|---|---|
| A | 90 to 100 |
| B+ | 85 to 89 |
| B | 80 to 84 |
| C+ | 75 to 79 |
| C | 70 to 74 |
| D | 60 to 69 |
| F | 0 to 59 |

## GENERATIVE AI

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

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**COURSE OUTLINE**

| Week | Date | Topics | Reading-Assignment | Homework\Classwork Assignment |
|---|---|---|---|---|
| **1** | **1/21**<br>**1/23** | Making Economic Decisions<br>Engineering Costs and Cost Estimating | **Ch 1**<br>**Ch 1-2** | **1.**(24,57,62,63,66) |
| **2** | **1/28**<br>**1/30** | Engineering Costs and Cost Estimating | **Ch 2 Cont.** | **2.**(7,9,12,33,52,55) |
| **3** | **2/4**<br>**2/6** | Interest and Equivalence<br>(omit pp 94-97) | **Ch 3** | **3.**(16,20,22,25,41,51) |
| **4** | **2/11**<br>**2/13** | Equivalence for Repeated Cash Flows<br>(omit pp 129-132) | **Ch 4** | **4.**(6,7,8,9,10) |
| **5** | **2/18**<br>**2/20** | **Review**<br>**Test 1 (Ch 1,2,3,4)** | **---** | **4.**(22,24,28,53,55) |
| **6** | **2/25**<br>**2/27** | Present Worth Analysis | **Ch 5** | **5.**(12,22,41,71,72) |
| **7** | **3/4**<br>**3/6** | Annual Cash Flow Analysis | **Ch 6** | **6.**(12,23,39,40,47,51,57) |
| **8** | **3/11**<br>**3/13** | Rate of Return Analysis | **Ch 7** | **7.**(6,12,18,32,45,62) |
| **SPRING RECESS 3/16-3/22** | | | | |
| **9** | **3/25**<br>**3/27** | Other Analysis Techniques | **Ch 9** | **9.**(14,32,50,68,73) |
| **10** | **4/1**<br>**4/8** | **Review**<br>**Test 2 (Ch 5,6,7,9)** | **---** | --- |
| **11** | **4/10**<br>**4/15** | Depreciation (omit pp 376-379) | **Ch 11** | **11.**(6,14,34,37,40,53,68) |
| **12** | **4/17**<br>**4/22** | **Income Taxes(Part 1)** | **Ch 12** | **12.**(15,16,18,30,45) |
| **13** | **4/24**<br>**4/29** | **Income Taxes (Part 2)**<br>**Review** | **---** | **Special Project** (14 problems) |
| **14** | **5/1**<br>**5/6** | **Test 3 (Ch 11,12)**<br>**Review** | **---** | |
| ***** | | **Final Exams period / *TBA by Dept.** | **All Chapters** | |