IE 335 ENGINEERING COST ANALYSIS & CONTROL

Dielanda Dumay **Fall 2024**
Djd84@njit.edu 908-686-8919

Course Description

The course will emphasize the tools and techniques applicable to cost analysis and control, including standard costs, variance analysis, cost volume relationships, cost estimation, and utilization of accounting data for operations control.

BSIE/ME Program Educational Objectives

1. Program graduates use the fundamental principles and major areas of Industrial Engineering in their professional practice.
2. Program graduates are lifelong learners, pursuing graduate education, and professional growth in Industrial Engineering and related fields.
3. Program graduates pursue diverse career paths and advance in a variety of industries.

BSIE/ME Student Outcomes

A. An ability to apply knowledge of mathematics, science, and engineering
B. An ability to design and conduct experiments, as well as to analyze and interpret data
C. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
D. An ability to function on multi-disciplinary teams
E. An ability to identify, formulate, and solve engineering problems
F. An understanding of professional and ethical responsibility
G. An ability to communicate effectively
H. The broad education necessary to understand the impact of engineering solutions in a global and societal context
I. A recognition of the need for, and the ability to engage in lifelong learning
J. ***A knowledge of contemporary issues***
K. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

IE 335 Outcomes of Instruction:

1 Define the basic terminology and utilize principles of accounting and be able to record transactions in the appropriate accounts (f, j, h).
2 Analyze financial statements using a variety of ratios (f, j, h).
3 Identify cost/volume relationships and use cost drivers to compute break-even points or determine profit/loss levels (h, i, j).
4 Perform budgeting and activity-based costing (h, i, j).
5 Demonstrate their possession of written and oral communication skills (g, i, j).
6 Describe and analyze the impact of engineering solutions in global, economic, environmental or societal contexts (g, i, j).

TEXT: Horngren, C.T.,et.al., *Introduction to Management Accounting,* 16th Edition, Pearson, 2014.
Also see Journals such as: Management Accounting, Cost Management, Cost Engineering, Harvard Business Review, Sloan Management Review, Manufacturing Engineering, and Industrial Engineering.
www.prenhall.com/horngren for student resources made available from the publisher with text.

COURSE OUTLINE**

Week	Date	TOPIC	Assignments (I-Individual, G-Group)	Due Date
1	(9/1)	Introduction- Engineering Cost Analysis Overview- Application, skills & knowledge required. Interaction between engineering, economics, finance and accounting. Behavioral considerations.	**Read Chapter 1/Diagnostic/Quiz (I)**	(9/07/24)
			Self & Group Introductions (G)	(9/07/24)
2	(9/8)	Basics of financial/cost management. Elements of financial accounting & development of income statements & balance sheets.	**Read Chapter 15, Appendix 15A, 15B (Assignments posted on Canvas) (I)**	(9/12/24)
			Team Building - Pass around a Story (G)	(9/14/24)
3	(9/15)	Continuing on the subject matter of Week 2 - Cash flow statements. Inventory methods.	**Read Chapter 16, Appendix 16A (Assignments posted on Canvas) (I)**	(9/21/24)
4	(9/22)	Understanding and analysis of financial statements, Ratio analysis, Difficulties of income measurement **(First Exam Review)**	**Read Chapter 17 (Assignments posted on Canvas) (I)**	(9/26/24)
			Term Paper Group Topic Choice (G)	(09/28/24)
5	**(09/29)**	**TEST # 1**	**Chapters 1, 15, 16, 17 (I)**	**(10/05/24)**
6	(10/06)	Cost- Volume relationships, Cost drivers, Fixed & variable costs, Breakeven points, Volume profit planning & analysis Cost function	**Read Chapter 2 (Assignments posted on Canvas) (I)**	(10/10/24)
			Team Building - Two truths and a lie (G)	(10/12/24)
7	(10/13)	Development and behavior, Methods of measurement, Application of regression analysis.	**Read Chapter 3 (Assignments posted on Canvas) (I)**	(10/17/24)
			Term Paper References Due - Library Research Assignment (G)	(10/19/24)
8	(10/20)	Cost management systems, Cost classification, Job order process, Activity based, Cost driver, Identification and activity based management	**Read Chapter 4 (Assignments posted on Canvas) (I)**	(10/26/24)
9	(10/27)	Cost analysis- Marketing applications, Relevant costs, Special orders, Product addition or deletion, Target costing, Pricing decision. (**Second Exam Review**)	**Read Chapter 5 (Assignments posted on Canvas) (I)**	(10/31/24)
			Project Log/Team Progress Report (G)	(11/02/24)
10	**(11/03)**	**TEST # 2**	**Chapter 2, 3, 4, 5 (Online)**	**(11/08/24)**
11	(11/10)	Cost analysis, Production & operations management application, Opportunity costs, Make or buy, Joint product costs, Sunk & unit costs. Flexible budgets, Standard cost & Variance analysis	**Read Chapter 6 (Assignments posted on Canvas) (I)**	(11/16/24)
12	(11/17)	Flexible budgets, Standard cost & Variance analysis. (**Part 1**)	**Read Chapter 7 (Assignments posted on Canvas) (I)**	(11/21/24)
			Term Paper Draft (G)	(11/23/24)
13	(11/24)	Flexible budgets, Standard cost & Variance analysis **(Part 2)**	**Read Chapter 8 (Assignments posted on Canvas) (I)**	(11/27/24)
13	**(11/28)**	**Fall Recess - No Class**		**(11/30/24)**
14	(12/01)	Cost allocation - Activity based costing, Job order cost systems. **(Final Exam Review)**	**Read Chapter 12 (Assignments posted on Canvas) (I)**	(12/07/24)
15	(12/08)	**Term Paper Presentations (FINAL TERM PAPERS & PPT DUE)**	**Live Webex -Time to be determined (G)**	(12/11/24)
16	**(12/12)**	**Reading Day**		
	(12/13)			
17	**(12/15)**	**FINAL EXAM**	**Chapter 6, 7, 8, 12 (Online)**	**(12/21/24)**

Please read the chapters prior to class** *(Subject to be changed)**

Assessment of Learning/Grades

1. Participation – Participation of class discussions is essential to learning and you will be asked to communicate your thinking via several formats (aloud, homework, class assignments). Participation will be assessed in both lecture and homework participation. You must complete all your assignments in addition to the introduction. Participation is required in 2 forms: 1) Your answer to the question and 2) Your responses to your classmates' answers to the questions.

2. Assignment Requirement/Homework – Several homework assignments throughout the semester will require slightly more in-depth work on a topic and application of knowledge. The weekly assignment is expected to be done individually. All assignments will be posted in advance. Please do not go far ahead. For example, you must post your assigned solved problems or answers to questions and case studies by Thursday, 11:59 PM, and Group assignments or any comments on responses by Saturday, 11:59 PM, of that same week. **Note: if you do not submit your assignment by the assigned time, you will automatically get an F for that part of the assignment. Please adhere to this timeline to ensure that you get the best grades for your efforts.**

3. Diagnostic Reflections: You must contribute meaningful; substantive responses demonstrating that you understand the concepts from the course readings. Your discussion contributions must be grounded in the course content and demonstrate an analytical or evaluative level of comprehension and thought. Participation in diagnostic questions is not an attempt to evoke right or wrong answers. It is an opportunity for you to engage in meaningful dialogue in the online environment and provide further assistance when needed.

4. Group Term paper – Write a term paper that examines the cost and effects of your energy source on the economy as a whole. The economy could be the United States' (you'll presumably have more data on this) or the global economy. (For additional information please see the term paper documentation). You are allowed to form your own group; selection must be completed by the first week of the semester, or you will be assigned to one.

5. Exams – Three tests will cover the application and understanding of the course material. Also, these tests will require you to practice the skills we will be emphasizing.

6. Peer Review – Term Paper Group Evaluation of each person's work or performance within the group.

Academic Dishonesty: The course has a zero-tolerance policy for academic dishonesty, including plagiarism and cheating. Instances of dishonesty will be punished with a zero on the assignment, and consultation with the office of the Dean of Students will be required to determine if further action is required. If you have any questions about what constitutes plagiarism or cheating, please ask us or refer to the academic integrity code: www.njit.edu/academics/integrity.php. (**See Honor Code**)

Course Grade (Subject to be adjusted)

Your grade for this course will be based on participation, exams, assignments, and projects.

Final Grades Scheme

A > 90%	C+ 75-79%
B+ 85-89%	C 70-74%
B 80-84%	D 60-69%

PERCENTAGE BREAKDOWN

Online Participation/Homework/Quizzes	15%
Exams (1, 2, 3)	65% (**20, 20, 25% Respectively**)
Term Paper	20% (1/5 of which devoted exclusively to the quality and suitability of references as well as peer review)

***Attendance Policy** – To be counted as present in class, you must have participated in some academic activity at least once weekly. Participation in an online class topic discussion, submission of a quiz/homework, or submission of a query about class topics are examples of academic activity. **More than two unexcused absences will result in a failing grade.**