MSE406 – Engineering Cost Analysis (3 units)

CSUN – Spring 2025; Ticket # 15985; Tuesday/Thursday 2:30-3:45pm; JD-1593

Instructor ***Ghassan "Gus" H. Elias***: BS/MS; Industrial/Manufacturing Systems Engineering

- **Expertise:** Engineering Consulting, Decision-Making/Risk Analysis and Facility Planning. Quality Assurance & Control, Industrial Safety & Material Control - global certification programs for installing & commissioning electronic & pneumatic devices in General (Non-Hazardous) Locations, Hazardous 'Classified' Areas & Potentially Explosive Atmospheres.

- Email address: **Gus.Elias@csun.edu**
- Website: **http://www.csun.edu/~ghe59995/**

- MSEM Department Office: JD-4510; (818) 677-2167
- Faculty Office: JD-3308
- Office hours: Tuesday: 1:30-2:30 pm …. **Must set an appointment with instructor.**

Textbook Ostwald, Phillip F. and Timothy S. McLaren, *Cost Analysis and Estimating for Engineering and Management*. Prentice Hall, First Edition 2004
(ISBN-10: 0131421271, IBSN-13: 978-0131421271)

Catalog Description Principles of cost analysis and estimating for the evaluation of engineering design and production with emphasis on evaluation innovations and inventions. Includes case studies and practical application experiences. Available for graduate credit.
Prerequisite: MSE304 (Engineering Economy) with a minimum C- grade for MSE and EM majors, or MSE300 with a minimum C- grade for EMT majors.

Course Objectives This course is designed to contribute primarily to the students' understanding of the fundamentals for estimating costs being critical to product design and business development.

Students who successfully complete this course will have the ability to:

1. Analyze material and labor costs of products.
2. Estimate the costs of processing/operations.
3. Apply basic cost analysis approaches to innovations and inventions.
4. Evaluate costing situations using alternative approaches and make recommendations.
5. Improve communicate skills through team reports and presentations.

STANDARD OPERATING PROCEDURES:

1. Class members are expected to maintain personal and professional standards consistent with the Code of Ethics of the national Society of Professional Engineers, the Preamble and Fundamental Canons of which are as follows:

Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct. Engineers, in the fulfillment of their professional duties, shall:

- ***Hold paramount the safety, health and welfare of the public.***
- ***Perform services only in areas of their competence.***
- ***Issue public statements only in an objective and truthful manner.***
- ***Act for each employer or client as faithful agents or trustees.***
- ***Avoid deceptive acts.***
- ***Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.***

2. Students must submit **ORIGINAL WORK** only.
3. Students are expected to participate in class and on **CANVAS**.
4. Students are **responsible** for the course material, reading assignments, presentations and discussions.
5. ***Tardy/Late submissions are unacceptable*** ….. **NO EXCEPTIONS!**
6. Class members **MUST** always be **considerate & respectful** to their colleagues and to the instructor.

***** This course syllabus is your contract with the CECS, MSEM and the instructor. Students must read the syllabus thoroughly and adhere fully to ALL of the stated terms and listed guidelines. No Exceptions! *****

NOTE #1: Activate **and** use your CSUN email address for ALL academic correspondences. Do not use your personal email address to communicate with the instructor. Messages from non-CSUN email addresses will **NOT** be acknowledged. Instructor will only utilize CSUN's SOLAR's email database to communicate with class.

NOTE #2: **The last day to drop classes is 07-Feb-2025. Students must initiate this process; not faculty. Failure to formally drop a course will result in a "WU" grade which is equivalent to an "F" grade; affecting your cumulative GPA detrimentally.**

==========

The use of mobile phones is not allowed during the class/lab sessions, throughout the semester.

==========

Proposed Schedule/Plan

This is a ***TENTATIVE*** syllabus. Depending on the progress of the course material, the syllabus (dates, topics, assignments & exams) ***may change*** if deemed necessary.

Date	Topics	Reading Assignments / Tasks
Wk. 1	Introduction to Cost Estimating	Course Introduction: Basics & Outline / Ch 1 Review Syllabus and Canvas
Wk. 2	Labor Analysis	Chapter 2
Wk. 3	Material Analysis	Chapter 3 ***Term Project: Groups Formation***
Wk. 4	Accounting Analysis	Chapter 4 ***Term Project: Assignment of Topics***
Wk. 5	Forecasting	Chapter 5
Wk. 6	Estimating Methods	Chapter 6
Wk. 7	Operation Estimating	Chapter 7
Wk. 8	**Midterm Exam (30%) // Wk. 8 All material covered in weeks 1-7 // OPEN BOOK & NOTES** **Format: T/F, M.C., Essays & Problem-Solving – Given in 2 class sessions (Tue & Thu)**	
Wk. 9	☺ **NO INSTRUCTION / March 17-23, 2025** ☺	**SPRING BREAK – Be Safe / Have Fun**
Wk. 10	Product Estimating	Midterm Exam: Outcome & Review Chapter 8
Wk. 11	Cost Analysis	Chapter 9
Wk. 12	Engineering Economy	Chapter 10
Wk. 13	Engineering Economy	Chapter 10
Wk. 14	The Enterprise	Chapter 11
Wk. 15	**Term Project: Selected Group Presentations (PPT)**	
Wk. 16	**Term Project: Selected Group Presentations (PPT) /// Course Review & Wrap-Up**	
Wk. 17	**FINAL EXAM (40%) // COMPREHENSIVE** (emphasis on material after the midterm exam) **Thursday, 15-May-2025, 3:00 – 5:00 pm // Format: T/F, M.C., Essays, Problem-Solving** **OPEN BOOK & NOTES**	**Enjoy the summer break** ☺ ☺ ☺ ☺ ☺

GENERAL COURSE STRUCTURE

There are three learning activity tracks that run concurrently throughout this course:

-The first track entails lecture presentations and discussions of topics pertaining to lean and cell manufacturing, systems engineering and management.

-The second track involves reading assignments, quizzes, midterm and final exams (multiple-choice, true & false, problems and possible write-up essays), and participation in class discussions.

-The third track is the team development of a presentation about a topic related to cost analysis. By the 3rd-4th week of the semester, the instructor will establish teams consisting of 4-6 members each, chosen randomly.

Note: Only the term project will be a team effort. All other course tasks and requirements (exams, assignments, etc.) are done solely on an individual basis. The manner in which this course is structured is such that active participation of all class members throughout the semester is essential.

COURSE EVALUATION / GRADE SCALE

(Refer to the last page of the syllabus for more information on grades)

(10 pts) Attendance and class participation. Avoid tardiness altogether.
Homework Assignments (--- posted/uploaded via CANVAS by certain due dates.

(30 pts) Midterm Exam (Week #8, 2 sessions) --- ALL material covered in Weeks 1-7.
Format: True/False, Multiple Choice, Essays & Analytical Problems.

(20 pts) Group Term Project:

PPT file and in-class presentation: 18 points
Self & Peer Evaluation Form (SPEF): 2 points
You can download the SPEF via the MSE406 webpage and CANVAS.

Important Note: By not submitting the SPEF, the student will forfeit the +/- sign for the course grade.

(40 pts) Final Exam (Week #17, Thursday, 15-May-2025, 3-5 pm) / Comprehensive Material
Format: True/False, Multiple Choice, Essays & Analytical Problems.

Letter-Grade Scale (Curving of grades will NOT be utilized!):

A ≥ 92	**88 ≤ A- < 92**	**85 ≤ B+ < 88**
80 ≤ B < 85	**78 ≤ B- < 80**	**75 ≤ C+ < 78**
70 ≤ C < 75	**68 ≤ C- < 70**	**60 ≤ D < 68**	**F < 60**

Academic Dishonesty:

Academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form at California State University Northridge. All students involved in academic dishonesty will be disciplined in accordance with university regulations and procedures. Discipline may include suspension and/or expulsion from the University.

"Cheating or plagiarism in connection with an academic program at a CSU campus is listed in Section 41301, Title 5, California Code of Regulations as an offense for which a student may be expelled, suspended or given a less severe disciplinary sanction.

Academic dishonesty is an especially serious offense and diminishes the quality of scholarship and defrauds those who depend on the integrity of the University's programs." Please consult university policy regarding plagiarism and the consequences.

https://catalog.csun.edu/policies/academic-dishonesty/

Any student caught cheating or plagiarizing in this class will receive a zero for the assignment and may be referred to the dean's office for additional consequences.

Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person. The instructor reserves the right to submit your papers to turnitin.com for identifying papers containing unoriginal material.

==========

GROUP TERM PROJECT GUIDELINES:

- Groups of 4-6 members will be chosen randomly by the instructor.

- Topics for the group term project will be assigned by the instructor. The term project is worth **20%** of the course overall grade. All class members must participate in the research task and presentation.

- The **mandatory** "Self & Peer Evaluation Form" (posted on CANVAS and the course website) is due on **30-Apr-2025 by 11:59 pm (PST)**. Submitting the form is 100% required by all class members. The form should be "**typed**" and **not** hand-written or scanned. Students will individually and confidentially submit the form in **PDF** via a special link made available in the course module on CANVAS.

- The professionally-done PPT file (one upload per group!) is due on **30-Apr-2025 by 11:59 pm (PST)**. A complete write-up report is not required. Each group leader/facilitator shall upload the PPT file via s special link to be made available in the course module on CANVAS. **The PPT** must contain **25** slides (**no more or less**) and should be done professionally.

- The presentation must be informative, creative, rich, insightful and reader-friendly. The presentation should be comprehensive covering **all** aspects of the assigned topic/project. Follow the "Oral Presentations Rubric" that is posted on the course webpage and on CANVAS. Submissions that do not conform to the above format will not be accepted.

- The in-class showcase presentations will take place from **May 1st till May 8th**.
Specific groups will present on specific days.

- All students **must** attend **ALL OF THE GROUP PRENSENTIONS**, else a **25%** grade reduction (to the term project's grade weight) will be imposed for each missed presentation.

Important Note: All group members must participate equally time-wise in the class presentation. Students who do not present will be issued a ZERO for the term project.

It is a fundamental principle of academic integrity that the authorship of the intellectual content of works submitted as part of a class assignment must be fairly represented. Contributions of language and thought must be appropriately credited.

==========

For Your Information: Grade Evaluation Criterion

*** 'A' grade range (A to A-) is reserved for work that is exceptional. This means that it (1) is professional and reflects the writer's/s' careful consideration of audience and purpose; (2) shows perfect to near-perfect understanding of the necessary concepts and analytical tasks; (3) where appropriate, it shows the capacity to think creatively or to see implications beyond the immediate scope of the question; (4) contains all necessary information (invention); (5) is arranged in a logical manner (6), is memorable; (7) delivery is visually appealing; and (8) is free of mechanical errors and is formatted as specified. Work must be flawless to attain an A/A-. Work with minor flaws that is nonetheless excellent in other ways will earn an A-.**

*** A grade in the B range means that the work is acceptable at the graduate level (B- range) to very good (B/B+). This work satisfies all (B+) or most (B/B-) of the requirements of the question & research tasks, shows the capability to think beyond the task by relating it to other areas of knowledge in or outside of the course; is neatly presented and shows above-average use of academic English. If the work is decently written, is formatted basically correctly, and covers most of the required content, but has several minor flaws or one major flaw, the grade is B-.**

*** A grade in the C range means that the work, while covering much of the required ground, does not show graduate-level analytic and expressive ability. That is, major and minor items may be missing or incorrect; and while the language may communicate most points adequately, it does not qualify as above-average academic work.**

*** A grade in the D range shows that the work does not, overall, achieve an acceptable level of coverage of the requirements AND/OR the language is insufficient to make the writer's points understandable to the reader. The content may be either incorrect to an unacceptable degree, or very incomplete.**

*** A grade of F indicates that so little of the required content is covered that grading the paper is an exercise in futility. It may mean that very major points have clearly not been grasped or have been misunderstood by the student. An F may also indicate that the ideas are expressed in such a way that they are not at all understandable to the reader. A grade of F is also awarded when assigned work is not handed in, or not handed in by the set deadline.**

==========