

ENGR 2308 – ENGINEERING ECONOMICS

South Plains College

Common Course Syllabus: ENGR 2308 Revised December 2019

Department: Mathematics, Engineering, and Computer Science

Discipline: Engineering

Course Number: ENGR 2308

Course Title: Engineering Economics

Available Formats: conventional

Campuses: Levelland

Course Description: Methods used for determining the comparative financial desirability of engineering alternatives. Provides the student with the basic tools required to analyze engineering alternatives in terms of their worth and cost, an essential element of engineering practice. The student is introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The course will address some aspects of sustainability and will provide the student with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam.

Prerequisite: Successful completion of 'C' or better in MATH 2413

Credit: 3 **Lecture:** 3 **Lab:** 0

Supplies: Please see the instructor's course information sheet for specific supplies.

This course partially satisfies a Core Curriculum Requirement: None

Core Curriculum Objectives addressed:

- **Communications skills**—to include effective written, oral and visual communication
- **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

1. Apply different methods to calculate the time value of money.
2. Construct cash flow diagrams for a given problem.
3. Estimate total revenue, total cost, and break even points.
4. Calculate the uniform series payment, given principal, interest rate, and pay period.
5. Perform project evaluation, including cost/benefit analysis.
6. Articulate principles of taxation and depreciation.
7. Perform capital budgeting, cost comparisons, and replacement analyses.
8. Solve problems at a level consistent with expectations of the engineering economics portion of the Fundamentals of Engineering exam.

Student Learning Outcomes Assessment: A pre- and post-test questions will be used to determine the extent of improvement that the students have gained during the semester

Course Evaluation: There will be departmental final exam questions given by all instructors.

Attendance Policy: Attendance and effort are the most important activities for success in this course. Records of your attendance are maintained throughout the semester. Five (5) absences, **for any reason**, are allotted to the student for the semester. Tardies count as one-half (1/2) of an absence. Tardies will be applied for consistently being late to class, as deemed by the instructor and leaving class early. If this number is exceeded, the instructor has the right to drop you with a grade of F or an X, depending on their discretion.

Plagiarism violations include, but are not limited to, the following:

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill;
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:

1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain an unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another's work during an examination or on a homework assignment;
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's;
9. Taking pictures of a test, test answers, or someone else's paper.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the

Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To [activate](#) accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or [email cqilster@southplainscollege.edu](mailto:cqilster@southplainscollege.edu) for assistance.

Campus Concealed Carry: Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <http://www.southplainscollege.edu/campuscarry.php> Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

TexBook Program: *This course is in the SPC TexBook program, so you do not need to purchase a textbook or access code for this course.*

- **What is TexBook?** The required textbook/digital content for this course is available to you in Blackboard from the first day of class. The charge for the textbook/digital content is the lowest price available from the publisher and bookstore and is included in your tuition.
- **How do I access my TexBook?** Your course material is in your Blackboard course from the first day of class. Access to your course material is provided either by VitalSource or other links inside your Blackboard course. VitalSource (and many publisher's) eBook features include the ability to hear the text read aloud, highlight, take notes, create flash cards, see word definitions, build study guides, print select pages, and download 100% of the book for offline access.
- **Help with TexBook issues and support:** check with your professor or visit: <https://support.vitalsource.com/hc/en-us/requests/new> (available 24/7 via chat, email, phone, and text)
- **Opting out of TexBook:** Participating in TexBook is not mandatory, and you can choose to opt out. However, by opting out you will lose access to the course textbook/digital content and competitive pricing, and you will need to purchase the required course material on your own. If you drop the class or opt-out before the opt-out deadline, the TexBook fee will be automatically refunded to your SPC account.

The opt-out deadline for Fall and Spring is the twelfth class day. The opt-out deadline for shorter terms varies between the second and third class day.

Please consult with your professor before deciding to opt-out.* If you still feel that you should purchase the course textbook/materials on your own, send an **opt-out email to **pwells@texasbook.com**. Include your first name, last name, student ID number, and the course you are opting out of. Once you have been opted-out, you will receive a confirmation email. If you need assistance with the process, contact the SPC Bookstore:

Email: pwells@texasbook.com / **Phone:** 806-716-2097

ENGR 2308 – ENGINEERING ECONOMICS

South Plains College – FALL 2023

Professor: Dr.Ramesh Krishnan (alias: Krams)

Office: AG 108 **PHONE:**(806)716-2698 **Email:** rkrishnan@southplainscollege.edu

Office Hours: **M:** 10:20 – 11:00am ; 12:15 – 2:30pm; **T:** 10:00 – 11:00; 12:20 – 1:00pm;
F: 8:00 – 11:30 am (Lubbock Downtown Center)

Class Times: **The class will meet at the scheduled time FACE TO FACE on Mondays. Online lectures will be available for the Wednesday classes through Blackboard.**

Textbook: Engineering Economic Analysis, (14th edn.): by Newman, Eschenbach, and Lavelle
You are automatically enrolled in "**Texbook Program**". Read the common course syllabus listed above to know more about the Texbook Program. Book for the course can be accessed through Blackboard. Look for the "Book" on the left hand menu in your course.

GRADING: Grades in the course will be based on the following components:

• 3 exams	(60%)	$A \geq 90$
• Homework	(10%)	$80 \leq B < 90$
• Quiz	(10%)	$70 \leq C < 80$
• Final exam	(20%)	$60 \leq D < 70$
		$F < 60$
TOTAL	100%	

PS: NO MAKE-UP exams will be given. If you miss **one**, the final exam will count twice.

HOMEWORK: Homework problems for each chapter have been assigned online and can be accessed through the following URL address: <https://oup.instructure.com/enroll/8F4NMF>
The due dates will be as listed online for each assignment and there will not be any late submissions allowed under any circumstance. If the book is bought at the bookstore on campus then it will come bundled with the access code for the homework. If the book is bought elsewhere please make sure you buy the code for online homework access.

COURSE DESCRIPTION: Emphasizes the systematic evaluation of the costs and benefits associated with proposed technical projects. The student will be exposed to the concepts of the "time value of money" and the methods of discounted cash flow. Students are prepared to make decisions regarding money as capital within a technological or engineering environment
This course is designed to present engineering students the major concepts and techniques of engineering economic analysis that are needed in the decision making process. The emphasis of this course is on the analytical analysis of money and its impact on decision making

STUDENT LEARNING OUTCOMES: After completing this course;

1. The student will use EXCEL spreadsheets and financial functions to model and solve engineering economic analysis problems.
2. The student will define and provide examples of the time value of money.
3. The student will demonstrate the effects of depreciation, income taxes, inflation and price change in engineering economic analysis problems.
4. The student will solve economic problems involving comparison and selection of alternatives by using variety of analytical techniques including present worth analysis, annual worth analysis, future

worth analysis, rate of return analysis, benefit-cost ratio, sensitivity and breakeven analyses, and payback period analysis.

An equally important objective of this course is to develop broad engineering skills. Engineering requires the mastery of complex concepts and development of critical thinking and problem solving skills. While these skills come naturally to some people, most of you will need to learn, develop, and practice techniques to enhance your ability to learn and apply engineering concepts. The skills that you develop and sharpen in this course may improve your performance in future engineering courses and determine your eventual success as a practicing engineer.

Course Outline		
This schedule is tentative and subjective to change. Changes will be announced in class.		
Week	Date	Topics and Sections Covered
1	8/28, Mon	Introduction, Chapter 1
	8/30, Wed	Chapter 2
2	9/4, Mon	Holiday
	9/6, Wed	Chapter 2
3	9/11, Mon	Chapter 2
	9/13, Wed	Chapter 3
4	9/18, Mon	Chapter 3
	9/20, Wed	Chapter 3
5	9/25, Mon	Chapter 4
	9/27, Wed	Chapter 4
6	10/2, Mon	Chapter 4
	10/4, Wed	Chapter 4
7	10/9, Mon	Chapter 5
	10/11, Wed	Exam #1
8	10/16, Mon	Chapter 5
	10/18, Wed	Chapter 5
9	10/23, Mon	Chapter 6
	10/25, Wed	Chapter 6
10	10/30, Mon	Chapter 7
	11/1, Wed	Chapter 7
11	11/6, Mon	Chapter 7
	11/8, Wed	Exam #2
12	11/13, Mon	Chapter 8
	11/15, Wed	Chapter 8
13	11/20, Mon	Chapter 8
	11/22, Wed	Thanksgiving break
14	11/27, Mon	EXAM #3
	11/29, Wed	Chapter 9
15	12/4, Mon	Chapter 9
	12/6, Wed	Chapter 12
Finals	12/11, Mon	Finals