Course Title: Economic Analysis and Technical Applications

Course Prefix: CHEG **Course No.:** 2003 **Section No.:** P 03

Engineering | **College of Engineering**

Instructor Name:	***Kazeem B. Olanrewaju, PhD***
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Office Hours: **MWF 2:00 PM - 3:00 PM or By Virtual**
Office Hours: **Email at anytime**

Course Location: ***New Electrical Engr Bldg 115***
Class Meeting Days & Times: **MWF 12:00 P.M - 12:50 P.M.**
Lab time (Recitation) **every Monday 5:30 pm-6:20 pm in *Agric Business Bldg 119***

Catalog Description: **CHEG 2003. Economic Analysis and Technical Applications.** (3-0) Credit 3 semester hours. Fundamental concepts of economic principles. Evaluation of technical alternatives, economic significance of technical proposals; interest, description, analysis, and forecasting.

Prerequisites:
Co-requisites: Prerequisites or co-requisites: MATH 1124

Required Text: **"Engineering Economic Analysis" By Donald G. Newman, Ted G. Eschenbach, and Jerome P. Lavelle. 2017. Oxford University Press 13th ed (ISBN 9780190296902) or 14th ed (ISBN 9780190931919)**

Recommended Text/Readings:

1. **"Basics of Engineering Economy" By Leland Blank and Anthony Tarquin. 2008. McGraw- Hill Higher Education. ISBN 978-0-07-340129-4**
2. **C. S. Park, Contemporary Engineering Economics, 4th Ed. 2007, Prentice-Hall. ISBN- 0-13-187628**
3. **Sullivan, W.G., Wicks and Koelling, J.A. Engineering Economy, 14th Edition, 2009, Prentice-Hall. ISBN-10-0136142974**

Access to Learning Resources:

PVAMU Library:
phone: (936) 261-1500;
web: http://www.tamu.edu/pvamu/library/
University Bookstore:
phone: (936) 261-1990;

web: https://www.bkstr.com/Home/10001-10734-1?demoKey=d

Course Goals or Overview:

1) To provide students with the principles of economics and their applications in Engineering.
2) Projects alternatives play a crucial role in the areas of production, processing, fabrication and manufacturing of all man-made products.
3) The profitability or cost of the project is a necessary condition for giving the project the green light for funding and execution.
4) The course provides the students with technical and engineering aspects of assessing different projects either in their professional career or in private life.

Course Outcomes/Objectives

At the end of this course, the student will have achieved and demonstrated the following outcomes.

1 Understand the economic principals, and economic terms
2 Understand the economic and mathematical equations used in the economic analysis.
3 Understand the economic costs, methodologies of assessing the costs, cost estimation and cost concepts.
4 Understanding the time value and project cash flow in engineering and economy.
5 Understand the comparison of alternatives for different projects.
6 Understand Break Even Analysis, income tax, risk analysis and depreciation.
7 Understand of Capital investment in the engineering projects

Course Objectives/Accrediting Body (NCATE, ABET, NAAB, etc…) Standards Met:
At the end of this course, the student will demonstrate

		Alignment with Academic Program	Alignment with Core Curriculum
1	Ability to apply knowledge of mathematics, science, & engineering	A	A
2	An ability to identify, Formulate, and Solve engineering problem.	D	D
3	Broad education necessary to Understand the impact of engineering solution in global and social context	H	H

Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Exams or Quizzes – written tests designed to measure knowledge of presented course material
Exercises or **Homework** – written assignments designed to supplement and reinforce course material
Projects or Assignments – designed to measure ability to apply presented course material
Class Participation – daily attendance and participation in class discussions

(instruments will vary slightly depending on the course)

Grading Matrix

Instrument	Value (points or percentages)	Total
Test or popup questions &Quizzes	2-4 Tests and popup quiz	10-15%
Mid Term Exam	Mandatory	15%
Homework or projects*	Between 5 to 6 homework	30-35%
Attendance, participation and presentation and solving problems in groups in the lab is Mandatory from 5:30-6:30 PM)	Very important	15%
Final Exam		25%
Total:		100%
Discount for lack of participation		-10%

**** Homework assignments are for helping you to understand the materials in the class. However homework assignments are not graded. You are responsible for all presented materials in theclass.***

GRADING SYSTEM

The standard university grading scale is indicated below.

Grade	Meaning	Score Range	Grade Values
A	**Excellent**	**90 – 100**	**4**
B	**Good**	**80 – 89**	**3**
C	**Satisfactory**	**70 – 79**	**2**
D	**Passing**	**60 – 69**	**1**
F	**Failing**	**0 – 59**	**0**
S	**Satisfactory**	**70 – 100**	**0**
U	**Unsatisfactory**	**0 – 69**	**0**
I	**Incomplete**		**0**
W	**Withdrawal from a course**		**0**
WV	**Withdrawal from the University Voluntarily**		**0**
MW	**Military Withdrawal**		**0**

Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

Exam Policy

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

Professional Organizations and Journals

None

References

1) **C. S. Park, Contemporary Engineering Economics, 4th Ed. 2007, Prentice-Hall. ISBN- 0-13-187628-7.**

Course Regulations in Addition to University Rules and Procedures

- **NO make-up exams unless there is an appropriate written excuse**
- **Failing to attend Mid-term and Final Exams will result in "F" grade in the final course grade.**
- **Review Session will be in the last day of class and the Final Exam time will be on**

review session class. This is due to my travel overseas for a meeting or a conference. However, if I am not traveling the exam will be as scheduled by the university.

- ***Special attention must be taken in case of unexpected circumstances in case of not attending the Mid-term or final exam.*** **You need to get the appropriate approval, signature and documentation from the university. Otherwise the final grade will result in "F" Grade. With appropriate documentation and you have attended the class during semester in all class time and you have taken all previous exams and submitted the popup quizzes …etc. you will be assigned a "grade I" with appropriate approval from Head of the Department, Dean of the College, and the University Academic Affairs.**

University Rules and Procedures

Disability statement (See Student Handbook):
Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):
You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.

3. Fabrication: use of invented information or falsified research.

4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or
(3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Technical Considerations for Online and Web-Assist Courses

Minimum Hardware and Software Requirements:

-Pentium with Windows XP or PowerMac with OS 9
-56K modem or network access
-Internet provider with SLIP or PPP
-8X or greater CD-ROM
-64MB RAM
-Hard drive with 40MB available space
-15" monitor, 800x600, color or 16 bit
-Sound card w/speakers
-Microphone and recording software
-Keyboard & mouse
-Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins
-Participants should have a basic proficiency of the following computer skills:
- ·Sending and receiving email
- ·A working knowledge of the Internet
- ·Proficiency in Microsoft Word
- ·Proficiency in the Acrobat PDF Reader
- ·Basic knowledge of Windows or Mac O.S.

Netiquette (online etiquette): students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

Technical Support: Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261- 3282

Communication Expectations and Standards:
All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following ***my receipt*** of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

Submission of Assignments:
Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

Discussion Requirement:
Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

It is strongly suggested that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.

READING/LABORAORY ASSIGNMENT/HOMEWORK

WEEKS	READING/LABORAORY ASSIGNMENT/HOMEWORK	Chapters/Study Guide
WEEK 1	❖ **Chapter 1**: Making Economic Decisions	
WEEK 2	❖ **Chapter 2**: Estimating Engineering Costs and Benefits	
WEEK 3	❖ **Chapter 3 :** Interest and Equivalence	
WEEK 4	❖ **Chapter 4** : Equivalence for Repeated Cash Flows	
WEEK 5	❖ **Chapter 5** : Present Worth Analysis	
WEEK 6	❖ **Chapter 6**: Annual Cash Flow Analysis	
WEEK 7	❖ **Chapter 7**: Rate of Return Analysis	
WEEK 8	❖ **Chapter 7**: Rate of Return Analysis ❖ **Chapter 8** :Choosing the Best Alternative	
WEEKS 9	❖ **Chapter 9**: Other Analysis Techniques	
WEEK 10	❖ **Chapter 10**: Uncertainty in Future Events	
WEEK 11	❖ **Chapter 11**: Depreciation	
WEEK 12	❖ **Chapter 12**: Income Taxes for Corporations	
WEEK 13	❖ **Chapter 13**: Replacement Analysis	
WEEK 14	❖ **Chapter 14** : Inflation and Price Change	
WEEK 15	**Review Materials**	
WEEK 16	**FINAL EXAMINATION : 6th December 2019**	
Exams – Tests and Quizzes	**Please see the University calendar and the exams will be announced in the class. Please attend the class all the time**	

LABORAORY ACTIVITIES DURING THE SEMESTER (LAB TIME –

MANDATORY ATTENDANCE

WEEKS	READING/LABORAORY ASSIGNMENT/HOMEWORK	Chapters/Study Guide
WEEK 1	❖ **Chapter 1**: Case studies and practical solving problems for Making Economic Decisions	
WEEK 2	❖ **Chapter 2**: Case studies and practical solving problems for Estimating Engineering Costs and Benefits	
WEEK 3	❖ **Chapter 3** Case studies and practical solving problems for Interest and Equivalence	
WEEK 4	❖ **Chapter 4** : Case studies and practical solving problems for Equivalence for Repeated Cash Flows	
WEEK 5	❖ **Chapter 5** : Case studies and practical solving problems for Present Worth Analysis	
WEEK 6	❖ **Chapter 6**: Case studies and practical solving problems for Annual Cash Flow Analysis	
WEEK 7	❖ **Chapter 7**: Case studies and practical solving problems for Rate of Return Analysis	
WEEK 8	❖ **Chapter 7**: Case studies and practical solving problems for Rate of Return Analysis ❖ **Chapter** 8: Case studies and practical solving problems for Choosing the Best Alternative	
WEEKS 9	❖ **Chapter 9**: Case studies and practical solving problems for Other Analysis Techniques	
WEEK 10	❖ **Chapter 10**: Case studies and practical solving problems for Uncertainty in Future Events	
WEEK 11	❖ **Chapter 11**: Case studies and practical solving problems for Depreciation	
WEEK 12	❖ **Chapter 12**: Case studies and practical solving problems for Income Taxes for Corporations	
WEEK 13	❖ **Chapter 13**: Case studies and practical solving problems for Replacement Analysis	
WEEK 14	❖ **Chapter** 14: Case studies and practical solving problems for Inflation and Price Change	
WEEK 15	Case studies and practical solving problems for **Review Materials for the final exam**	
WEEK 16	**FINAL EXAMINATION**	
Exams – Tests and Quizzes	**Please see the University calendar and the exams will be announced in the class. Please attend the class all the time**	