**Instructor:**  Ronald Cross

**E-Mail:** recross@uta.edu

**Phone:** (817) 272-1728

**Office Location**: ERB 549

**Office Hours:** Monday, Wednesday & Friday’s 11:00am to 12:00 noon or by appointment

**TA:** TBD

**E-Mail:** TBD

**Office:** WH401

**Office Hours**:

**Section Information:** IE-2308, Section 003

**Time and Place of Class Meetings:**

* Date and Time: Monday and Wednesday, 4:00pm to 5:20pm
* Classroom: GACB 105

**Course Purpose:** This class provides students with the basic decision making tools required to analyze engineering project alternatives in terms of their worth and cost, an essential element of engineering practice. Students are introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The class also provides students with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam. The class has many applications in personal life. This course satisfies the University of Texas at Arlington core curriculum requirement in social and behavioral sciences.

**Description of Course Content:** 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.

**Student Learning Outcomes:**

* Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
* Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.
* Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
* Social Responsibility: to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities.

**Required Textbook**: *Basics of Engineering Economy*, 2nd Edition, Leland T. Blank and Anthony Tarquin, ISBN-13 9780073376356

**Descriptions of major assignments, examinations and grading:**

3 Regular Exams: 75% (25% each) of total grade

Individual Present Worth Project: 10% of total grade

Weekly quizzes/homework: 15% of total grade

* Missed exam: There is a single comprehensive makeup exam at the end of the semester if one exam is missed by an excused absence. You must notify me before the exam if you are unable to take it on the scheduled date.
* Comprehensive Exam may be substituted for lowest of the 3 regular exams. Please note, if you choose this option the comprehensive exam will replace your lowest regular exam score whether it is greater than or less than that score.
* Missed daily quizzes/homework: No makeup for daily quizzes or homework.
* Late homework: Once the class starts, late homework or project assignments that come in during the class may have a minimum of 10% docked. After class Late homework will not be accepted.
* A late project, past the due date, will lose one letter grade (10% penalty) before grading. Not submitting the project will result in a “0” score.
* Grading Policy:
  + A >= 90%
  + B 80 to 89.9%
  + C 70 to 79.9%
  + D 60 to 69.9%
  + F < 60%

Note: All Final Cumulative Grades will be rounded to the nearest unit. As an example this means a final cumulative score greater than or equal to 89.50% but less than 90% will be rounded to 90%; cumulative score of greater than or equal to 79.5% but less than 80% will be rounded to 80%, etc.

**Key Assignment Assessment:** The project will be the key assignment for this class. Each of the Student Learning Outcomes listed on this syllabus will be assessed for the project. The project will be turned in via Blackboard and evaluated for originality by SafeAssign.

**Topics Covered:**

* Foundations of Engineering Economy
* Factors: How Time and Interest Effect Money
* Nominal and Effective Interest Rates
* Present Worth Analysis
* Annual Worth Analysis
* Rate of Return Analysis
* Benefit/Cost Analysis and Public Sector Projects
* Breakeven, Sensitivity and Payback Analysis
* Effects of Inflation
* Depreciation Methods

Additional Topics if Time Allows:

* Replacement & Retention Decisions
* Cost Estimating
* After-tax Economic Analysis
* Alternative Evaluation Considering Multiple Attributes and Risk

**Attendance:** At the University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. Given this I have instructed the TA to take attendance for each of the first 2 weeks of class. After that time attendance will not be taken.

* Please note late arrivals are disruptive; because of this the classroom doors may be locked with no further entry allowed 10 minutes after start of class.
* Word of warning - if you miss a class and an assignment was due that day or a pop quiz was given late work will not be accepted nor will any make up quiz be given. Be advised missed assignments (0’s) may have a detrimental affect your final grade.
* Also be aware that anything said by me or your classmates that is of note and not in the lecture notes is fair content for quizzes and exams.
* Missing a class does not alleviate you from the responsibility of meeting any verbal directions or guidance given out in that class.
* If you miss a class it is recommended you have a classmate take notes for you.

**General Policies:**

* Please use “IE 5304” in the Subject line of all e-mail correspondence PLUS the section number. Include your student number and name at the end of each email. There are more of you than there are of me. I need to be able to locate you in the landscape of classes and sections. If these are not included I will not be obliged to respond.
* Any homework or project assigned is due at the ***beginning of the class*** on the due date. No Make-up work will be accepted and no exceptions.
* All homework will be turned in with a physical copy unless otherwise notified/allowed by the professor.
* No make-up quizzes, exams or assignments will be given.
* Along with Exam III, an Optional Comprehensive Final will be given during Finals Week. If you miss either of the first 2 regular exams the comprehensive exam may be used to replace the missed exam. Or if choosing to substitute for the lowest previous exam, it will replace that score **no matter if higher or lower** - be advised there is upside opportunity and a down side risk. Please note if you choose to take the Comprehensive Exam it will also count as your Exam III.
* For any essay type assignments or assignments requiring verbiage as a part of the answer the student is expected to use academic/professional language. These assignments will be graded as such. It is recommended students to seek advice at least once this semester from the Student Writing Center.
* The instructor reserves the right to modify the policies, calendar, assignments, slides or due dates if necessary.
* Faculty are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate because of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

**Assignments** – All assignments must have the Student’s full name, ID #, Date and Name of the assignment on 4 lines in the upper left hand corner. This is required for all homework that does not have an official title page. Two points will be counted off if you do not do this on the assignment. Example:

Ronald E. Cross

ID # 123456789

1/26/2015

HmWK Assignment #1

**Exam/Quiz Policy:**

All exams and quizzes are closed book and closed notes. Students are only allowed to use pencils, erasers, and calculators. Any needed exam documentation will be provided at the time of the exam. The equation sheet as well as interest factor tables (if required) will be provided as part of the exam.

In order to prepare for exams, students are strongly encouraged to work the example problems available on Blackboard, rework the problems worked by the instructor in class, review the presentation slides, and participate in class. Students must work alone on tests, quizzes, case studies (unless otherwise specified), individual projects and homework. No sharing of any materials may occur during tests and quizzes including book, calculator, formula sheet, etc. Please bring your UTA ID card to all tests. Cell phones calculators CANNOT be used for an exam and quiz. Exams will make use of scantron cards, so please bring one for each exam.

After an exam: Once graded, the exams will be handed out and reviewed in class. No changes or marks may be made on the scantron cards or the paper copy of the exam. The exams must be turned in when requested. If the exam is not provided back to the instructor or the GTA leaves the room without the exam, the student will receive a grade of zero for the exam. Students who wish to see their graded exams, after the review in class, must come during the instructor's office hours. Copies of the exams are not allowed or provided. The instructor highly encourages students who perform poorly on exams to come and discuss results with the instructor during office hours.

**Expectations for Out-of-Class Study:** Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend ***at least an additional 9 hours per week*** of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

**Grade Grievances:** Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. For undergraduate courses, see <http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations: UT** Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364.

**Counseling and Psychological Services, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*. For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities. ([http://www.uta.edu/police/Evacuation Procedures.pdf](http://www.uta.edu/police/Evacuation%20Procedures.pdf))

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at http://www.uta.edu/universitycollege/resources/index.php

**The English Writing Center (411LIBR)**: Hours are 9 am to 8 pm Mondays-Thursdays, 9 am to 3 pm Fridays and Noon to 5 pm Saturdays and Sundays. Walk In ***Quick Hits*** sessions during all open hours Mon-Thurs. Register and make appointments online at [http://uta.mywconline.com](http://uta.mywconline.com/). Classroom Visits, Workshops, and advanced services for graduate students and faculty are also available. Please see [www.uta.edu/owl](http://www.uta.edu/owl) for detailed information.

**Emergency Phone Numbers**: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

**Other Pertinent/Helpful Information**

Library Home Page <http://www.uta.edu/library>

Subject Guides <http://libguides.uta.edu>

Subject Librarians <http://www.uta.edu/library/help/subject-librarians.php>

Course Reserves <http://pulse.uta.edu/vwebv/enterCourseReserve.do>

Library Tutorials <http://www.uta.edu/library/help/tutorials.php>

Connecting from Off- Campus <http://libguides.uta.edu/offcampus>

Ask A Librarian [http://ask.uta.edu](http://ask.uta.edu/)

**Course Schedule**

“*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Ronald E. Cross.”*

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| --- | --- | --- | --- |
| **Week** | **Date** | **Content** | **Comment** |
| **Wk1** | **1/18/16** | **Holiday** |  |
|  | **1/20/16** | Introductions **& Course Review** |  |
| **Wk2** | **1/25/16** | **Chapter 1 - Foundation of Engineering Economy** |  |
|  | **1/27/16** | **Chapter 1 - Foundation of Engineering Economy** |  |
| **Wk3** | **2/1/16** | **Chapter 2 - How Time and Interest Affect Money** |  |
|  | **2/3/16** | **Chapter 2 - How Time and Interest Affect Money** |  |
| **Wk4** | **2/8/16** | **Chapter 3 - Nominal and Effective Interest Rates** |  |
|  | **2/10/16** | **Chapter 3 - Nominal and Effective Interest Rates** |  |
| **Wk5** | **2/15/16** | **Chapter 4- Present Worth Analysis** |  |
|  | **2/17/16** | **Chapter 4- Present Worth Analysis** | **Student Project Introduction & Discussion** |
| **Wk6** | **2/22/16** | **Exam I** |  |
|  | **2/24/16** | **Exam 1 Results Review, Follow Up on Student Projects** |  |
| **Wk7** | **2/29/16** | **Chapter 5 - Annual Worth Analysis** |  |
|  | **3/2/16** | **Chapter 5 - Annual Worth Analysis** |  |
| **Wk8** | **3/7/16** | **Chapter 6 - Rate of Return Analysis** | **Progress Check on Student Projects** |
|  | **3/9/16** | **Chapter 6 - Rate of Return Analysis** |  |
| **Wk9** | **3/14/16** | **Spring Break** |  |
|  | **3/16/16** | **Spring Break** |  |
| **Wk10** | **3/21/16** | **Chapter 6 - Rate of Return Analysis** |  |
|  | **3/23/16** | **Chapter 7 - Benefit/Cost Analysis** |  |
| **Wk11** | **3/28/16** | **Chapter 7 - Benefit/Cost Analysis** | **Progress Check on Student Projects** |
|  | **3/30/16** | **Chapter 8 - Breakeven, Sensitivity, and Payback Analysis** | **Please note last day to drop lass is 4/1** |
| **Wk12** | **4/4/16** | **Chapgter 8 - Breakeven, Sensitivity, and Payback Analsysis** |  |
|  | **4/6/16** | **Exam II** |  |
| **Wk13** | **4/11/16** | **Exam II Review** | **Progress Check on Student Projects** |
|  | **4/13/16** | **Chapter 9 - Replacement** |  |
| **Wk14** | **4/18/16** | **Chapter 10 - Inflation** |  |
|  | **4/20/16** | **Chapter 10 - Inflation** |  |
| **Wk15** | **4/25/16** | **Chapter 12 - Depreciation** | **Student Projects Due** |
|  | **4/27/16** | **Chapter 12 - Depreciation** |  |
| **Wk16** | **5/2/16** | **General Topics & Catch Up** |  |
|  | **5/4/16** | **Exam III Review** |  |
| **Wk17** | **5/11/16** | **Exam III or Comprehensive Final Exam Wednesday, 2:00 to 4:30pm** | **Same Class Room - Please see Official Final Exam Schedule, this is informational only** |