**Pittsburg State University**

**College of Technology**

**Department of Engineering Technology**

**COURSE TITLE:** ETECH-502 –01, 02 Engineering Economics

**Course Intended for Partial Fulfillment of the Pitt State Pathway Curriculum**

**COURSE SCHEDULE:** MWF-01, 10-10:50 AM Room S105 (Face to Face)

 MWF-02, 1-1:50 PM, Room S105 (Face to Face)

**PROFESSOR:** Book, Rebeca Office: Room # W122C

 Phone: (620) 235-4034 E-mail: rbook@pittstate.edu

**OFFICE HOURS**: 9-10, 11-11:30 AM 12:30-1, 2-3 PM MWF 9:30-11:30AM TUTH

**COURSE DESCRIPTION:** ETECH-502 Engineering Economy (3 hours)

Analysis of engineering proposals utilizing time value of money and related factors. Includes depreciation and after-tax consequences, feasibility and optimum life comparisons. Additional topics for three hours of credit are manufacturing cost studies, estimating, sources of costs, allocation of costs and justifications.

**Objective: PittState Pathway Essential Studies Element to be Covered in This Course:**

**Human Systems within a Global Context:**

* **Students will describe human organizational systems using a variety of disciplinary and interdisciplinary perspectives: For a detailed description see the** [**Pitt State Pathway**](https://www.pittstate.edu/faculty-staff/faculty-senate/index.html) **documentation: Level of Student Learning =Benchmark**
* **Methods of Assessment:**
* ***Estimate*** monetary values for decision making using a variety of methods
* ***Describe*** manufacturing terms and costs
* **Tools used for assessment:**
* Use mathematical and graphical techniques, such as learning curves and break-even analysis, to evaluate manufacturing cost estimates and economic decisions. (Assignment #2 and Test #1.))
* Evaluate product/project decisions with economic analysis methods. (Tests #3-5)
* Identify terms and costs associated with the product manufacturing. (Matching - Test #1.)

**Objective: PittState Pathway Companion Element to be Covered in This Course:**

**Social Responsibility Within a Global Context:**

* **Students will describe the roles and responsibilities of citizens at all levels. Level of Student Learning =Benchmark**
* **Methods of Assessment:**
* ***Describe*** the ethical roles and responsibilities of citizens
* **Tools used for assessment:**
* Recognize professional and ethical responsibility and how engineering technology can affect society. (ETAC-ABET i) (Listing on Test #1, video evaluation, and ethics paper.)
* Work effectively in teams. (ETAC-ABET e) (Group project and peer evaluations)

**COURSE TOPICS:**

* Interest
* Present Worth
* Annual Worth
* Rate of Return
* Depreciation & Taxes
* Engineering Costs
* Mfg. Costs
* Ethics
* Teamwork

**TEXTBOOK/MATERIALS REQUIRED:**

* **Engineering Economic Analysis** – by Newman, Oxford University Press, Inc. 13th edition, ISBN: 978-0-19-029690-2
* Microsoft Office Products including Word and Excel, Internet Access and CANVAS

**GRADING SYSTEM**: Grades will be based on the following scale and proportional system:

90 - 100 A

80 - 89 B

70 - 79 C

60 - 69 D

0 - 59 F

Homework Assignments (26, drop 2 lowest scores) 30%

Exams (7 exams, drop lowest score) 30%

Ethics Paper 15%

Estimating Projects 25%

 **Tentative Schedule of Activities**

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| --- | --- | --- |
| **WEEKLY**  | **CLASS CONTENT** | **ASSIGNMENTS**  |
| 1  | In Introduction, Econ. decisions; Cash flow diagrams,  Unit Pricing, Learning Curve, Cost Index, PowerPoint #1 Ch. 1,2 | 1,2  |
|  2 |  Martin Luther King Holiday, Review, Test #1Interest & equiv., Spreadsheets – Excel Ch. 3 | Review, Test #1  |
|  3 |  Compound interest Ch.3, 4  |  3 ,4, 5  |
| 4 | U Uniform series, Arithmetic & geometric gradient Ch. 4  | 6, 7, 8 |
| 5 | N Nominal vs. effective interest, Continuous compounding,  Career Services Ch. 4 | 9, Test #2, 10 |
| 6 | Ethics Video, PowerPoint #2, #3, #4, Ethics Paper | 11, 12  |
| 7 | Present Worth Analysis Ch. 5 | 13, 14 |
| 8 | Test #3, Annual Worth Analysis Ch. 6  | 15, Test #3, 16 |
| 9 | Spring Break |   |
|  10 | Annual Worth Analysis, Test #4, Ethics Paper Due Ch.6  | 17, Test #4, Paper due  |
| 11 | Rate of Return Analysis, Incremental Analysis Ch.7,8 | 18, 19, 20 |
| 12 | Test #5, Depreciation, Start Group Project Ch. 11  |  Test #5, 21, 22, Group Project  |
|  13 | Depletion, Test #6, Project Ch. 11  | 23, Test #6, Group  |
|  14 | Income Taxes Ch. 12, 12A | 24, 25, Group  |
| 15 | Test #7, Project Presentations  | Test #7, Group  |
|  16 | Individual Projects Paper Due |  Individual Project |
| 17 | Finals Week – Individual Project Reviews Due | Individual Project  |

**Etiquette Expectations (Netiquette):**

* It is expected that all students will communicate with one another and the professor in proper tone and civility, whether the communication is by electronic means, by ph0ne, or face-to-face.
* E-mails are to be written in standard speaking style and not in popular abbreviations used online and/or using regional colloquialisms.
* Proper spelling and grammar are expected in communications with other students and the professor.
* Please be aware of and sensitive to all cultural differences of students and the professor when communicating.

**Course and University Policies:**

* Any student who, because of a disabling condition, may require special arrangements in order to met course requirements should contact me as soon as possible to make necessary accommodations. Please click the link to the Syllabus Supplement for more detailed information: <https://www.pittstate.edu/registrar/syllabus-supplement.html>
* As stated in the Syllabus Supplement regarding Dead Week Policy: “no tests or major assignments will be presented during the week prior to final examination week, unless identified in the course syllabus presented at the start of the semester.” For this class, final points, the syllabus, assignments, due dates, exams, and/or quizzes may be changed accordingly throughout the semester as deemed necessary by the professor.

**Minimum Technology Requirements:**

* Gorilla Geeks is a great resource for technical issues with Canvas, log-ins, etc. They can be reached at the following:
* Gorilla Geeks Help Desk: 1-620-235-4600
* E-mail: geeks@pittstate.edu
* Web site: <https://www.pittstate.edu/it/gorilla-geeks.html>
* Most everyone is new to the Learning Management System (LMS) of Canvas. If you are not completely comfortable with Canvas, please click the link to a Canvas help page:

https://www.pittstate.edu/it/information-technology-services/canvas.html

* Students will need to be familiar and competent with general computer skills such as downloading information, saving, and uploading. Advanced skills that may be necessary are video chat (mic and webcam) and uploading Power Point Presentations with a self-video embedded within.
* If you have technical questions, you can message the professor, use the Help menu the Canvas menu has to the left, and/or contact Gorilla Geeks (see above for contact information.)

## **Special Instructions:**

## Directions and instructions other than those listed in this course outline will be given as necessary.

* The use of tobacco products is not permitted in the Kansas Technology Center.
* The consumption of food and drink is not permitted in the computer classroom.
* Reference citing: if you quote a piece of data, you must be able to tell where you found it, unless you developed the information through your own research.
* Academic Misconduct: You are expected to abide by the Pittsburg State University Code of Student’s Right and Responsibilities as shown at:
* <http://www.pittstate.edu/audiences/current-students/policies/rights-and-responsibilities/>