CTC 475 **Coordinator: Jayne Baran**
Economic Analysis in Technology **Classroom: Donovan G143**
Fall 2019 **Time: TR 4:00-6:00 pm**

Course Description:

Methods for choosing between alternatives based on the time value of money. Analytical costs, models and techniques as applied to engineering technology and manufacturing. Replacement studies, depreciation and after-tax analysis, risk, uncertainty and sensitivity analysis.

Required Text and Materials:

Author: Blank and Tarquin
Title: Basics of Engineering Economy
ISBN: 978-0073376356

Learning Outcomes:

The object of this course is to introduce students to the theory and applications of engineering economics. Upon completion of this course, students should have the ability to select the best project/equipment/materials through economic justification.

Projects emphasize teamwork and communication, as well as the application of industry-standard word-processing and spreadsheet software. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner.

Office Hours and Contact Info:

see http:\\people.sunyit.edu/~barans Donovan Hall, 1197
(Or by appointment) Phone: (315) 792-7542
Email: Jayne.Baran@sunyit.edu

Prerequisite by topic:

1. Basic understanding of algebra
2. Basic understanding of differential calculus
3. Ability to use spreadsheet, word processing, and presentation software

Topics:

Topics:	Description	Hrs	HW Assignments/Projects
1	Foundations of Engineering Economy	2	Chapter 1 / Review Excel Software
2	How Time and Interest Affect Money	2	Chapter 2
3	Nominal and Effective Interest Rates	2	Chapter 3
4	Present Worth	2	Chapter 4 / Software Application Project
5	Annual Worth	2	Chapter 5
6	Rate of Return	2	Chapter 6 Software Application Project
7	Benefit/Cost and Public Sector Projects	4	Chapter 7 Software Application Project
8	Breakeven, Sensitivity and Payback	2	Chapter 9 Software Application Project
9	Replacement and Retention Decisions	2	Chapter 10 / Software Application Project
10	Effects of Inflation	2	Chapter 11
11	Estimating Costs	2	Chapter 12 / Software Application Project
12	Depreciation Methods	2	Chapter 13
13	After-Tax Economic Analysis	2	Chapter 14
14	Multiple Attributes and Risk	2	Chapter 15 / Sustainability Report
	Project Presentations/Activities	6	
	Mid-Term/Final/Reviews	8	

Computer Usage:

1. The syllabus, project assignments, and tentative class schedule will be posted on the web at http://people-devel.sunyit.edu/~barans/
2. Students will be required to use word processing and presentation software to prepare five written article summaries. One of the five will be presented orally.
3. Word processing and spreadsheet software will be used to complete the projects.

Projects:

1. Search two Internet sites related to economic analysis.
2. Develop a spreadsheet that can solve linear and nonlinear breakeven problems.
3. Develop a spreadsheet that explores simple versus compound interest and calculate economic factors.
4. Develop a spreadsheet that calculates annuities and continuous compounding rates.
5. Develop a retirement worksheet and compare it to one of the retirement tools found on the Internet.
6. Develop a spreadsheet that can determine financial measures of merit.
7. Develop a spreadsheet that uses depreciation to perform after-tax cost analyses.
8. Develop spreadsheets for dealing with uncertainty.

Methods of Evaluation:

Homework:
Homework shall be typed or neatly handwritten in pencil on engineering graph paper**.** There is no provision for make-up of homework assignments. A missed homework assignment is a zero and will be factored into the final grade.

Examinations:
There will be one midterm and one final exam scheduled during the semester. Students are expected to take the exams at the scheduled times. Generally, no make-up test will be given except for medical emergencies or other valid reason for which prior approval has been obtained.

Projects:
Applied design projects and reports emphasize teamwork and communication, as well as the application of industry-standard hydraulic, word-processing, spreadsheet, and presentation software. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner

Attendance/Participation:
Students are expected to attend every class period and have homework and project assignments completed and ready to present. A missed class does not excuse responsibility for the work covered in class and the homework assignments. No late assignments will be accepted. Generally, no make-up test will be given unless prior approval has been obtained. Students will be held to the standards set forth in the *Student Handbook*, stated as the College's "Code of Academic Conduct."

Homework	25%
Projects	25%
Mid-Term Exam	25%
Final Exam	25%
TOTAL	**100%**

Accommodations for Students with Disabilities:

In compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act, SUNY Polytechnic Institute is committed to ensuring comprehensive educational access and accommodations for all registered students seeking access to meet course requirements and fully participate in programs and activities. Students with documented disabilities or medical conditions are encouraged to request these services by registering with the Office of Disability Services. For information related to these services or to schedule an appointment, please contact the Office of Disability Services using the information provided below.

Evelyn Lester, Director
Office of Disability Services
lestere@sunypoly.edu
(315) 792-7170

Utica Campus
Peter J. Cayan Library, L145

Albany Campus
Suite 309, Students Services Office
NanoFab South

Prepared By S. Jayne Baran on February 20, 2020