Course name	**ECE 32700 Engineering Economics**
Credit and contact hours	(3 cr.) Class 3
Course coordinator's name	Brian King
Textbook	C. Park, *Contemporary Engineering Economics*, 6th Ed., Pearson, 2013, ISBN: 9780134105598
Course information	ECE 32700 Engineering Economics (3 cr.) P: Sophomore Standing. Class 3. Engineering economics is the application of economic techniques to the evaluation of design and engineering alternatives. The role of engineering economics is to assess the appropriateness of a given project, estimate its value, and justify it from an engineering standpoint. This course covers the time value of money and other cash-flow concepts, reviews economic practices and techniques used to evaluate and optimize engineering decisions, and discuss the principles of benefit-cost analysis. **Prerequisites/ Co-Requisite** P: Sophomore standing **Required, Elective, or Selected Elective:** EE Elective, CE Elective
Goals for the course	Upon successful completion of the course, students should be able to 1. Understand the terminology used in engineering economic analysis. [1,2,6] 2. Understand time-value-of-money concepts such as net present worth analysis, equivalent uniform annual worth analysis, benefit/cost analysis, internal rate of return analysis, loans, leveraging, and fixed-income investment analysis. [1,2,6] 3. Understand the criteria for making economic-based decisions. [1,2,6] 4. Analyze before-tax and after-tax cash flows. [1,2,6] 5. Understand economic risk analysis techniques. [1,2,6] 6. Conduct minimum life cycle cost tradeoffs between initial and repair costs. [1,2,6] 7. Formulate economic solutions to real-world case study problems. [1,2,6] 8. Demonstrate capability to use Excel spreadsheet analysis in solving economic problems. [1,2,6] 9. Experience working in a project team to solve an economic problem and make a presentation of the solution using PowerPoint. [3,5]

	10. Write a project report, adhering to the specified format for business reports using appropriate writing style, grammar, and spelling. [3] 11. Learn how to estimate costs and perform an economic analysis in support of capstone design and other term projects. [1,2,6] 12. Develop cash flow analysis problem solving techniques for passing exams including the Engineering Economics portion of the EIT exam. [1,2,6]
List of topics to be covered	1. Based on two classes per week, fifteen weeks plus final exam 2. Engineering economic decisions (1 class) 3. Understanding financial statements (1 class) 4. Interest rate and economic equivalence (2 classes) 5. Understanding money and its management (1 classes) 6. Present worth analysis (1 class) 7. Annual worth analysis (2 classes) 8. Rate of return analysis (1 classes) 9. Estimating project cost elements (2 classes) 10. Depreciation and corporate taxes (2 classes) 11. Developing project cash flows (2 classes) 12. Inflation and its impact on project cash flows (1 class) 13. Sensitivity and risk analysis (4 classes) 14. Replacement analysis (2 classes) 15. Capital budgeting decisions (3 classes) 16. Economic analysis in the service sector (1 class) 17. Project presentations (2 classes) 18. Exams (2 classes)
Syllabi approved by	Brian King
Date of approval	8/27/2021