



DEPARTMENT OF COMPUTER SYSTEM ENGINEERING
UNIVERSITY OF ENGINEERING & TECHNOLOGY PESHAWAR

CSE 305: Engineering Economics

Lecturer	Engr. Durr-e-Nayab
Credit Hours	3 Units
Semester	5 th Semester
Prerequisite(s)	CSE305- Engineering Economics
Course Delivery	Lecture: 3 hours/week

Lecturer	Email	Office
Engr. Durr-e-Nayab	nayab.khan@uetpeshawar.edu.pk	Female Faculty Office

1. COURSE OUTLINE

The objective of this course is to understand the language of economics making the students capable of reading, understanding and interpreting accounting and financial statements. Optimization of resources is the key to success of any project or business. This course addresses engineering economic decisions, costs concepts, understanding money, time value of money and its management, roles of the interest rate, annuity, equivalent values, taxes, exchange rates, depreciation, risks, etc. and associating computing techniques with them. To enable the students understand the notions of present worth analysis, equivalent worth analysis, rate of return (internal, external) analysis for non simple investments, depreciation, income taxes, project cash flows, inflation, public sector economic analysis and project risk and uncertainty.

2. WEEKLY COURSE OUTLINE:

Week no	Topics to be covered.
1	Introduction to Economics and its relationship with Engineering field, Origin and Principles of Engineering Economics
2	Introduction to the basic terminologies of Engineering Economics, Cost Terminology, Types and Examples
3	General Economic Environment, Price demand Relationship, The Total Revenue Function
4	Cost, Volume, Optimal demand and Breakeven Point Relationships
5	Principles of Money-Time Relationships: What is Interest? Origin of interest
6	Simple vs. Compound interest, Compound interest formulas and its calculations using yearly, monthly, weekly and daily interest rates
7	Concept of equivalency, Notation and Cash flow: diagrams and tables

	Relationship between cash flows and investment as well as depositing and withdrawing in cash flows
8	Interest formulas relating Present and Future Equivalent Values of Single Cash Flows: Single Payment Present Worth and Compound Amount
9	Midterm examination
10	Interest formulas relating a Uniform Series (Annuity) to its Present and Future Equivalent Value, Uniform Series Present Worth and Compound Amount,
11	Sinking Fund, Capital Recovery, Deferred annuities (Uniform Series)
12	Uniform Series with Beginning of Year Cash Flows, Equivalence Calculations involving Multiple Interest Formulas
13	Interest Formulas Relating a Uniform Gradient of Cash Flows to its Annual and Present Worth
14	Interest Problems with Compounding more than Once Per Year, Interest Problems with Cash Flows less than Compounding Periods, Interest Problems with Interest Rates that Vary with Time
15	Implementations in Spread Sheets and Programming (Creating Software)
16	Applications of minimum attractive rate of return, the annual worth method, internal rate of return, the cost benefit ratio method
17	Course Revision
18	Final term examination

3. COURSE LEARNING OUTCOMES:

At the end of the course, the students will be able to:

- **CLO-1**
Describe the basic terminologies of economics making them capable of reading, interpreting and translating the language of economics such as accounting and financial statements.
- **CLO-2**
Solve economics problems such as time value of money, interest manipulation in single, uniform and gradient payment methods, deferred annuities and achieve their solutions based on economic approach.
- **CLO-3**
Carry out economic analyses of real scenarios and compare cost /revenue data in the decision-making process to justify or reject alternatives enabling them to function in the business and management fields using modern engineering economics tools and methods.

4. CLOs AND ITS MAPPING WITH PLOs:

S. No	CLOs	Cognitive Domain	PLOs
CLO-1	Describe the basic terminologies of Economics making them capable of reading, interpreting and translating the language of economics such as accounting and financial statements.	Cog-2 (Comprehension)	PLO1 (Engineering Knowledge)
CLO-2	Solve economics problems such as time value of money, interest manipulation in single, uniform and gradient payment	Cog-4 (Analysis)	PLO 2 (Problem Analysis)

	methods, deferred annuities and achieve their solutions based on economic analysis.		
CLO-3	Apply economics solutions to real scenarios and compare cost /revenue data in the decision-making process to justify or reject alternatives enabling them to function in the business and management fields using modern engineering economics tools and methods.	Cog-3 (Application) Cog-5(Synthesis)	PLO 3 (Design/ Development of Solutions) PLO 5(Modern Tool Usage)

5. CLOs ASSESSMENT MECHANISM:

Assessment Tools	CLO1	CLO2	CLO3
Assignments	✓	✓	
Quizzes	✓	✓	
Mid Term	✓	✓	
Final Term		✓	✓
Semester Project	✓	✓	✓

6. RESOURCES:

The lecture slides are based on the following textbook:

1. William G. Sullivan, Elin M. Wicks, C. Patrick Koelling, Engineering Economy, 16th edition, Pearson/Prentice Hall, 2014.
2. E. Paul DeGarmo, William G. Sullivan, James A. Bontadelli, Engineering Economy, 9th edition, 1997.

• Reference Books:

1. Engineering Economics By R. PANNEERSELVAM PHI Learning Pvt. Ltd., 01-Jan-2001 - Business & Economics - 300 pages.
2. Engineering Economics By J. K. Yates November 22, 2016 by CRC Press Textbook 350 Pages. ISBN 978148750851 Other online resources.
3. Contemporary Engineering Economics (6th Edition) By Chan S Park, ISBN-13: 978-0134105598

7. GRADING:

- Final Examination : 50%
- Mid Term : 25%
- Assignments and Quizzes : 15%
- Project : 10%