UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
ENGR-300	Engineering Economy	6
Prerequisites	**Department**	**Semester**
MATH-190/MATH-195	Engineering	Fall, Spring
Type of Course	**Field**	**Language of Instruction**
Elective	Engineering	English
Level of Course	**Lecturer(s)**	**Year of Study**
1st Cycle	Dr Antonis Hadjiantonis	3rd Year
Mode of Delivery	**Work Placement**	**Corequisites**
Face-to-face	None	None

Course Objectives:

The main objectives of the course are to:

- Analyse the critical role of engineering economy in engineering design and analysis
- Describe the main cost terminology and concepts
- Illustrate basic time-money equivalence calculations and engineering project evaluation techniques
- Apply time-money relationships in order to evaluate engineering projects and aid the management decision-making process
- Demonstrate the economic analysis and comparison of mutually exclusive alternatives
- Provide the necessary tools for the undertaking of feasibility studies with sensitivity analyses
- Introduce the capital budgeting process

Learning Outcomes:

After completion of the course students are expected to be able to:

- Underline the importance of engineering economy in today's environment
- Associate cost to organization activity and distinguish between the various types of costs (fixed, variable, direct, indirect, opportunity etc.)
- Employ mathematical relationships to estimate the time and money value equivalence
- Assemble cash flow diagrams to describe and analyse projects
- Assess projects in a variety of techniques including their present, annual and future worth, internal and external rate of return and the cost-benefit ratio method

- Investigate the feasibility of engineering projects using the minimum acceptable rate of return and the variability in their outcomes with breakeven and sensitivity analyses
- Compare and contrast mutually exclusive alternatives
- Evaluate projects in the presence of uncertainty
- Exhibit basic knowledge on the steps of capital budgeting

Course Content:

- Introduction to Engineering Economy
- The cost concepts, design economics and various cost-estimation techniques.
- The interest rate and money-time relationships and equivalence. The present value, the future value of money and annuities: theory, formulae, cash flow diagrams and applications
- Evaluating projects with IRR, ERR, payback period, Present, Annual and Future worth. Choosing among alternatives. The Effective interest rate.
- Evaluating engineering projects with the Benefit-Cost-Ratio (BCR) method
- Evaluating projects considering uncertainty. Breakeven and Sensitivity analyses. The probability tree diagrams.
- The Capital Budgeting process

Learning Activities and Teaching Methods:

Lectures, in-class exercises, problems, and case studies.

Assessment Methods:

Midterm exam, final exam, homework and/or projects

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Engineering Economy, Global Edition, 16/E	W. G. Sullivan, E. M. Wicks & C. P Koelling	Pearson	2014	9781292019499

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Engineering Economy, 7th edition	Leland T. Blank, Anthony J. Tarquin	McGraw-Hill	2012	978-0071086097