



ING-IND/35

Credits: 9

Course: Engineering Economics

Main language of instruction: Italian

Other language of instruction: English

Head instructor

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Objectives

The course examines the main economic tools for assessing the impact of economics on business decisions. The introduction focuses on the characteristics and types of businesses from a legal perspective. It then discusses the time value of money and how this affects the evaluation of projects, and how companies report financial results for the public. In the following parts, business management methodologies for successfully competing with competitors through effective and efficient project management are explained. A considerable part of the course is devoted to business performance analysis and methods for choosing project investments. Such analyses are crucial in the engineer's working life as the economic analyses of projects are more decisive than the intrinsic properties of the product/service offered. The approach used includes practical applications of the topics studied, in order to extend what has been learnt for specific conditions to different situations.

Competencies

The expected learning outcomes are as follows:

Knowledge and understanding

- understanding of terminology used in economics and management in general
- knowledge of the operating principles of the main instruments and investment analysis
- ability to understand financial reporting
- ability to understand project and business management problems and tools

Applied knowledge and understanding

- ability to make the choice of the best projects from an economic point of view
- ability to understand definitions and indications in financial reports
- ability to identify business problems and possible solutions

Communication skills

- development of correct, comprehensible and rigorous technical language that enables the clear and unambiguous expression of technical knowledge acquired in the field of engineering economics.

Learning skills

- ability to apply the knowledge acquired to solve, independently, problems not examined during the course, inherent to project choices and tools for business management.

Syllabus

Module 00: Introduction

- Introduction to the course
- Characteristics and types of companies from a legal point of view

Module 01: Time Value of Money and Financial Reporting

- The time value of money; The future value of a present sum; The present value of a future sum
- Income Statement; Balance Sheet; Accounting Principles

Module 02: Business and Competition

- Business management cycle
- Business organisation
- Corporate strategy

Module 03: Project management and productivity

- Productivity analysis and management
- Definition of project managers and tools available to them
- Definition and characteristics of project financing

Module 04: Performance evaluation

- Company indices for performance evaluation
- Profitability indices for project analysis

Module 05: Cash Flows and Cost of Capital

- Factors determining cash flows; Calculation of a company's cash flows
- Estimating the cost of capital and its impact

Module 06: Quality and supply chain management

- Definition of quality; definition of quality management issues and tools.
- Definition supply chain; definition of problems and tools for supply chain management

Evaluation system and criteria

The exam consists of a written test designed to ascertain the student's ability to rework the concepts acquired and the activities (E-activities) carried out during the course.

The E-tivity assessment is carried out in itinere, during the preparation of the course. The profit examination (written test) lasts 90 minutes.

The written test includes both exercises and open, multiple-choice theory questions; the score in thirtieths for each individual question will be specified in the examination text. The student's ability to rework the material on the platform will be a key element in the assessment of the question.

Handouts, notes, texts or forms in paper or digital form may NOT be used during the written examination. Only a non-programmable scientific calculator may be used.

Assessment of the written tests

Written tests are graded up to a maximum of 30 cum laude.

Bibliography and resources

1. Materials to consult

Lecture notes. Ask to the teacher by email

2. Recommended bibliography

Corporate Finance: The Basics – Tse, Terence C.M. London; New York: Routledge, 2018. ISBN – 9781138695603. (Available at the “Biblioteca Ferdinando Catapano”, Niccolò Cusano University, accessed in February 2025)