

Course ID
ECONENG
Course Duration
2 days

Course Title
Engineering Economics: A Comprehensive Workshop

Related Courses

- Cost Reduction: Opportunities and Strategies (COSTRED, 2 days)
- Project Management Workshop (PROJMGT2, 2 days)

Aimed At

This course is aimed at engineers, project engineers, design engineers, process engineers, program managers and others responsible for making capital equipment and related investment decisions.

Group Size

5-25

Prerequisites

The course assumes a process, industrial, manufacturing, or engineering background. A working knowledge of Microsoft Excel is required.

Course in a Nutshell

Engineering Economics is a 2-day comprehensive and intensive training program that integrates financial analysis and capital equipment investment decision-making concepts. This training will allow your team to understand the capital budgeting process and the factors influencing sound capital equipment investment decisions. This course brings together important concepts from manufacturing, finance, engineering, quality assurance, procurement, and other disciplines to evaluate capital investment options and associated risks. The course emphasizes the development and implementation of an engineering economics methodology for use throughout the organization.

We will show you how to apply popular investment analysis tools and streamline the analysis process using Excel's built-in investment analysis functions. We will also arm you with procedures and technologies for identifying, assessing, and managing the risk associated with making capital investment decisions.

Customize It!

Whatever the nature of your system and industry, we will customize the course to meet your specific needs and concerns. Here are some of the ways in which we can tailor the course to help you get more out of it:

- Add a "workshop day" to the course to allow the participants to work together to analyze an investment decision specific to your organization. The workshop day can be scheduled a few weeks after the course to allow time for applying the technologies presented in class under an experienced practitioner's guidance.
- Add additional Excel investment functions training.
- Schedule post-class follow-up consultation for continuing investment decision-making.

- Learn How To**
- Work together in an effective multi-disciplinary environment to make informed investment decisions.
 - Objectively identify all investment opportunities.
 - Identify lower-cost alternatives to capital equipment acquisitions.

**Course
Outline**

Day 1: Morning Session

- Introduction.
- Course overview.
- The capital acquisition and budgeting process.
- Investment decision considerations.
- Cost elements, including labor, material, equipment, installation, and moving services.
- Depreciation and amortization.
- Standards, efficiency factors, and utilization factors.
- Capturing manufacturing costs.
- Costs related to poor quality and recurring nonconformances.
- Approval levels.
- Prioritizing capital investment candidates.
- *Class exercise.*

Day 1: Afternoon Session

- Time value of money.
- The time value of money concept.
- Interest rates, compounding periods, and other factors.
- Calculating simple and compound interest.
- Nominal and effective interest rates.
- Interest formulas relating present and future values.
- The impact of burden, overhead, and general and administrative rates on capital investment decisions.
- Identifying interest rate factors and overhead rates.
- Microsoft Excel features that support time value of money calculations.
- *Class exercise.*

Day 2: Morning Session

- Investment Approaches.
- Capital investment considerations.
- The annual worth, net present value, internal rate of return, and payback approaches.
- Replacement analysis.
- Considering depreciation in investment decisions.
- Tax considerations.
- Advantages and disadvantages of the different investment analysis

approaches.

- Microsoft Excel features that support investment analysis.
- *Class exercise.*

Day 2: Afternoon Session

- Capital investment, design, facilitization, procurement, environmental health and safety, regulatory, and other risks.
- The Yes-No analysis approach.
- Capital equipment supplier stability and after-sale support.
- Identifying capital equipment after sale maintenance requirements.
- Selecting capital equipment sources.
- Creating capital equipment specifications.
- The roles of the Procurement and Finance organizations in capital investment decision-making.
- Recap, Q/A, and evaluations

How You Will Learn

- A seasoned consulting engineer-instructor will present this course in an interactive lecture and workshop format.
- Along with the lectures, we use exercises, puzzles, case studies, and interesting group activities to enrich the instruction and emphasize the essential points.
- You will receive a printed Participant Handbook that includes all materials presented in class, which will help you remember and retain what you learned and apply it on your job.
- You will learn key engineering economics and investment concepts from a theoretical, practical, and organizational perspective.

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