

HM321 Engineering Economics

Fall 2024 – Lecture 1

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Textbook

Basics of Engineering
Economy by Leland Blank
and Anthony Tarquin,
second edition, 2014,
McGraw-Hill



Second Edition

BASICS OF Engineering Economy

LELAND BLANK | ANTHONY TARQUIN

Bring Calculator Always

- Always bring your calculator with you in lectures
- Without practice you will not be able to do the calculations in your exams

What is Engineering Economy?

- Engineering economy is a collection of techniques that simplify comparison of alternatives on an economic basis
- Engineering Economy is NOT a method or process for determining what the alternatives are
 - Engineering economy begins only after the alternatives have been identified

- In engineering economy, only economic ideas are used as the sole criterion for comparing alternatives
 - Non-economic factors are not considered
- In real world decisions many non-economic factors must be taken into consideration
 - Example: technology for a power plant (see text)



SOME TERMS AND CONCEPTS

Glossary of Concepts and Terms

- The glossary of concepts and terms at the following URL is a useful reference
- https://highered.mheducation.com/sites/0073376353/student_view0/glossary_of_concepts_and_terms.html

Alternatives

- An alternative is a stand-alone solution for a given situation
- Alternatives may differ from each other in the following economic particulars:
 - Purchase cost (first cost)
 - Anticipated useful life
 - Yearly costs of maintaining assets
(Annual maintenance and operating costs)
 - Anticipated resale value (salvage value)

Cash Flows

- For each alternative future cash flows are estimated
 - Inflows of money (revenues)
 - Outflows of money (costs)
- Estimated cash flows are not exact amounts
 - These are futures estimates
 - No one can tell future prices exactly
- The result of an analysis are only as reliable as the estimates of cash flows used as input to the analysis

Alternative Selection

- Selection can only be done if there are at least two alternatives
- There is always a do nothing alternative

Evaluation Criteria

- Evaluation criteria defines how we determine the best alternative
- In economic analysis, financial units (rupees, dollars or other currency) are generally used as the tangible basis for evaluation
 - We select the alternative with the lowest cost
 - We select the alternative with highest overall net income

Intangible Factors

- Intangible factors may tilt the decision to an alternative that is not the best alternative as determined by economic analysis
- Examples:
 - Goodwill
 - Convenience
 - Friendship
 - Morale