

Department Of Computer Science and Engineering
Kathmandu University
Dhulikhel, Kavre



Subject: Engineering Economics

Course: MGTS 301

Level: B.E./B.Sc 3rd Year 1st Semester

Credit Hours: 3

1. Introduction to Engineering Economy:

Origin, principles, objectives and basis of engineering economy, engineering economy and design process, engineering economic analysis procedure, accounting and engineering economic studies.

2. Cost Concepts and Design Economics:

Introduction cost estimating (top down & bottom up) and cost terminology (different types of cost: opportunity, sunk etc), the general economic environment (general economic terms; demand, supply, utility, value, luxury, necessity, monopoly, perfect market), break-even point, cost-driven design optimization.

3. Money-Time Relationships and Equivalence:

Introduction, simple and compound interests, Equivalence-concept, cash flow diagrams, simple interest formula for present, future and annual equivalents (singly cash flow, uniform cash flow, uniform gradient, deferred uniform gradient, uniform geometric: only for single interest and discrete compounding), nominal and effective interest rate.

4. Applications of Money-Time Relationship:

MARR, PW, FW and AW method, IRR and ERR method, payback period method.

5. Comparing Alternatives:

Analysis & comparison of projects using IRR, NPV, PW, FW, AW: Useful lives equal to study period, useful lives are different among alternatives, mutually exclusive combinations of projects. Replacement Analysis: Reasons and factors for replacement studies, economic life.

6. Cost & Benefit Estimation Techniques:

Integrated approach to develop the net cash flows, parametric cost estimating, cost estimation in the design process, value engineering.

7. Analysis of alternatives with benefit cost (B/C ratio)

8. Depreciation:

Concept and terminology; Classical depreciation methods.

9. Dealing with Uncertainty:

Risk and uncertainty, sensitivity analysis.

Reference:

1. WG Sullivan et al, Engineering Economy
2. Chan S. Park, Contemporary Engineering Economics