Graduate Certificate in Engineering

Engineering Economics and Financial Management

Activity Analysis: A systematic approach to estimating the costs and benefits of different activities or projects, often used in engineering economics to compare different investment alternatives.

Annual Worth Method: A method for comparing investment alternatives in engineering economics, which calculates the present worth of the annual benefits and costs of each alternative over a given period of time, and then compares them to determine which alternative provides the greatest annual worth.

Capital Expenditure: The cost of purchasing or upgrading long-term assets, such as property, plant, and equipment. Capital expenditures are typically large, one-time expenses that are intended to provide benefits over a period of several years.

Compound Interest: Interest that is calculated on both the principal amount and any accumulated interest, resulting in exponential growth over time. Compound interest is a key concept in engineering economics, as it is used to calculate the future value of investments and the present value of future cash flows.

Depreciation: The gradual reduction in the value of an asset over time due to wear and tear, obsolescence, or other factors. Depreciation is a non-cash expense that is used to allocate the cost of an asset over its useful life.

Discount Rate: A rate used to calculate the present value of future cash flows in engineering economics. The discount rate reflects the time value of money, which means that a dollar received today is worth more than a dollar received in the future due to the potential earning capacity of that dollar.

Economic Life: The period of time over which an asset is expected to provide economic benefits, such as revenue or cost savings. Economic life is an important concept in engineering economics, as it is used to determine the optimal timing for replacing or upgrading an asset.

Engineering Economy: The application of economic principles to engineering decision-making, with the goal of maximizing the economic value of engineering projects and assets.

Equivalent Annual Cost (EAC): The annual cost of an investment, calculated by dividing the present worth of all costs (including capital expenditures, operating costs, and salvage value) by the present worth of an annuity factor. EAC is a key concept in engineering economics, as it allows for the comparison of different investment alternatives on an equal basis.

Future Value: The value of an investment at a future point in time, calculated by applying compound interest to the present value of the investment.

Graduate Certificate in Engineering: A postgraduate qualification that provides specialized knowledge and skills in a particular area of engineering.

Incremental Analysis: A method for comparing investment alternatives in engineering economics, which calculates the difference in costs and benefits between two alternatives, and then determines which alternative provides the greatest net benefit.

Internal Rate of Return (IRR): The discount rate at which the present value of the cash inflows from an investment equals the present value of the cash outflows, resulting in a net present value of zero. IRR is a key concept in engineering economics, as it provides a measure of the profitability of an investment.

Life Cycle Cost Analysis: A systematic approach to estimating the total cost of owning, operating, and maintaining an asset over its entire life cycle, from initial acquisition to disposal.

Net Present Value (NPV): The difference between the present value of the cash inflows and the present value of the cash outflows from an investment. NPV is a key concept in engineering economics, as it provides a measure of the profitability of an investment.

Operating Costs: The ongoing costs of operating and maintaining an asset, such as labor, materials, and utilities. Operating costs are a key component of life cycle cost analysis in engineering economics.

Opportunity Cost: The cost of forgoing the next best alternative when making a decision. Opportunity cost is a key concept in engineering economics, as it highlights the trade-offs involved in decision-making.

Payback Period: The time it takes for the cash inflows from an investment to equal the initial investment cost. Payback period is a simple but useful measure of the
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