Amended Course as passed by the Subject Committee Meeting held on Feb. 29, 2004.

MNG 410.3 Engineering Economics (3 – 2 -0)

	Theory	Practical	Total
Sessional	50	-	50
Final	50	-	50
Total	100	-	100

Course Objective:
After completing this course students will be able to use basic tools of economics and will also be able to conduct simple economic studies. Students will also be able to make evaluation of engineering projects in the public and private sector and be able to make decisions related to investment.

1. Introduction and Basic Principles of Economics (6 hrs)
Introduction, Studying Engineering Economics and important usages, Engineering Economics Techniques, Tangible and Intangible Factors, Competition, monopoly, oligopoly, Price and production, Local and national market, Consumer and producer goods, Demand, the law o demand, Elasticity of Demand, Utility and Demand, Law of Diminishing utility, Marginal Utlity, Supply, law of supply, Law of supply and demand, Law of Diminishing Returns, Marginal Revenue and marginal cost, principals of Engineering Economy, Engineering Economy, methodology and application.

2. Time Value of Money (6 hrs)
Introduction, Interest calculation: Simple Interest, Compound Interest, use of Interest Tables, Nominal Rate of Interest, Effective Rate of Interest, Present worth and Future worth: Discount, Continuous compounding and continuous compounding Formula, Interest Calculation for Uniform Gradient.

3. Depreciation (3 hrs)
Introduction: Types of depreciation, Depreciation cost, Determination of Depreciation cost Depreciation methods: Straight line method sinking fund method, Matheson Method, Sum of the year digit method, Service output method, Straight line plus Average Interest Method, Double Rate Declining Balance Method. Depletion.

4. Basic Methods of Engineering Economic Studies (5 hrs)
Present worth and annual worth methods, Future worth method, IRR method, Explicit Reinvestment Rate of Return (ERR) method, Minimum Attractive Rate of Return Method, Payback Period Method.

5. Cost Benefit Analysis (5 hrs)
Conventional benefit /Cost Ratio, Modified Benefit/ Cost Ratio, Break Even Analysis, Comparison of alternatives using capitalized worth method, Mutually

exclusive investment alternatives in terms of Combination of projects, Comparison of mutually exclusive alternative.

6. Enterprise Financing and Capital Investment (6 hrs)

Types of business organizations: Sole proprietorship, partnership, private limited company, public limited company, public corporations; Stock: Common stock. Preferred stock; Bonds: Classification of Bonds, Bond Amortization and Retirement, Value of a

Bond; Capital and profit: the profit motive amount of capital required, Estimate of income, Estimate of expenses, Gross profit, Net profit, Rate of Return, Risk on the investment of capital and Rule to safeguard capital investment.

7. Basic Accounting Procedure (6 hrs)

Accounting Terminologies; Asset and liabilities: Their types, ownership Sheet, The Fundamental equation of accounting, Financial statements: The Balance Sheet, The PL Statement, Analysis and interpretation of financial statements; Business Transaction: Debit and credit, Double entry Book Keeping, The Journal, Types of Journal entries, The Ledger, Relation between Journal and Ledger.

8. Cost Concept and Fundamentals of Cost Accounting (4 hrs)

Cost Terminology: Sum Cost Opportunity Cost, Fixed Cost, Variable Cost, Incremental Cost, Recurring and Non-recurring cost, Direct, Indirect and Overhead Cost, Standard Cost, Cash Cost Versus Book Cost, Lifecycle Cost, Prime Cost and Production Cost; Application of Cost Concept: Breakeven Analysis, Average Unit Cost Function, Present Economy Study; Cost Accounting: Comparison between cost accounting and General Accounting; Method of Cost Accounting; Elements of cost: Material, Labour, Overhead expenses; Method of Overhead distribution; Inventory of Materials; Pricing of Materials Issued.

9. Taxation System in Nepal (4 hrs)

Taxation Law, Depreciation Rates for Buildings Equipment, Furniture etc, Recaptured Depreciation, Taxes on normal gain, Taxes on Capital gain, Personal Tax, Corporate Tax, VAT.

Tutorials: 4 assignments, 3 quizzes and 3 case studies.

Text Book: Engineering Economy by: E. Paul De Garmo, William G. Sullivan and James A. Bonta delli.

Publisher: MC Milan Publishing Company.

Reference Books:

Economic Analysis for Engineering and Managerial Decision Making by N.N. Borish and S. Kaplan.

Publisher: MC Gran Hill Publishing Company.