Engineering Economics
BEG 395 MS

Year: III **Semester: II**

Teaching Schedule Hours/week			Examination Scheme						Total Marks
			Final				Internal Assessments		
			Theory		Practical		Theory	Practical	
L	T	P	Duration	Marks	Duration	Marks			
3	1	-	3	80	-	-	20	-	100

Course Objective:

The objective of this course is to provide the students knowledge of the basic tools and methodology of economic studies for evaluation engineering project in private industry, in the public sector and in the utilities area.

Course Contents:

1.0 Introduction (3 hrs)

1.1 Business and accounting terminology
1.2 Cash flow
1.3 Economic systems

2.0 Cost Classification and Analysis (5 hrs)

2.1 The elements of cost
2.2 Classification of cost: overhead cost, prime cost
2.3 Cost variance analysis
2.4 Job and process costing

3.0 Interest and the Time Value of Money (6 hrs)

3.1 Simple interest, compound interest, interest tables, interest charts
3.2 Present worth
3.3 Nominal and effective interest rates
3.4 Continuous compounding and continuous compounding formula
3.5 Interest calculations for uniform gradient

4.0 Basic Methodologies of Engineering Economic Studies (7 hrs)

4.1 Present worth and annual worth methods
4.2 Future worth method
4.3 Internal rate of return method
4.4 Drawbacks of the internal rate of return method
4.5 External rate of return method
4.6 Minimum attractive rate of return
4.7 The payback (pay-out) period method

5.0 Cost/Benefit Analysis (4 hrs)

5.1 Conventional cost/benefit ratio
5.2 Modified cost/benefit ratio
5.3 Break-even analysis

6.0 Investment Decisions: (8 hrs)

6.1 Comparison of alternatives having same useful life
6.2 Comparison of alternatives having different useful life
6.3 Comparison of alternatives including and excluding the time value of money
6.4 Comparison of alternatives using the capitalized worth method
6.5 Definition of mutually exclusive investment alternatives in terms of combinations of projects

6.6 Comparison of mutually exclusive alternative

7.0 Risk Analysis: (4 hrs)

7.1 Projects operating under conditions of certainty
7.2 Projects operating under conditions of uncertainty
7.3 Decision tree
7.4 Sensitivity analysis

8.0 Taxation System in Nepal: (3 hrs)

8.1 Taxation law in Nepal
8.2 Depreciation rates for buildings, equipment, furniture, etc
8.3 Recaptured depreciation
8.4 Taxes on normal gains
8.5 Taxes on capital gains
8.6 Value Added Tax (VAT)

9.0 Demand Analysis and Sales Forecasting (5 hrs)

9.1 Demand analysis
9.2 Correlation of price and consumption rate
9.3 Multiple correlation of price and consumption rate
9.4 Market research
9.5 Sales forecasting
9.6 Criteria for desirable sales forecasting procedures
9.7 Factors affecting accuracy of forecasting

References:

- E.P. DeGramo, W.G. Sullivan and J.A. Bontadelli, 8th Edition, Macmillan Publishing Company, 1988
- N.N. Borish and S.Kaplan, "Economic Analysis: For Engineering and Managerial Decision Making", McGraw-Hill.