ENGINEERING ECONOMICS
Scheme for End Semester Examination-2024

1. COURSE

Unit I: Introduction to Economics and Engineering Economics
Basic concepts of Engineering Economics: Demand Analysis, Supply Analysis, Market Equilibrium. Revenue Analysis. Demand Forecasting- Quantitative Methods, Consumer's Equilibrium.

Unit II: Production and Cost Analysis
Short Run and Long Run Production Functions, Producer's Equilibrium condition. Cobb-Douglas Production Function.
Cost Concepts: Short Run and Long Run Cost analyses. Break-Even Analysis.
Market: Concepts and Types; Perfect Competition, Monopoly

Unit III: Time Value of Money
Interest Formulae and their applications with cash flow diagram. Evaluation of Investment Proposals - Present Worth, Future worth and Annual Equivalent Method of comparison

Unit IV: Economic Appraisal Techniques
Net Present Value (NPV), Internal Rate of Return (IRR), Cost Benefit analysis. Depreciation calculation; Meaning and Definition, Methods.

Unit V: Macroeconomic policies
Functions of commercial banks and central bank, Fundamentals of Business cycle, Macroeconomic policies for stabilization.

Exclude following portions for this End Sem examination:

- **Market (perfect competition and monopoly) of Unit-II**
- **Pay back criteria period of Unit-IV**
- **Functions of central and commercial bank of Unit-V**

2. Lesson Plan

Course Lecture No.	Topics to be covered	CO Mapping
1	**Introduction** An Introduction to Economics and Engineering Economics.	CO1
2-4	**Basic concepts of Economics**: Demand and Supply Analysis: **DEMAND:** Determinants, Demand Function, Law of Demand, Demand Schedule, Individual and Market Demand curve, Change in Quantity demanded and Change in Demand, Shift in Demand Curves.	CO2
5-7	**SUPPLY**: Determinants, Supply Function, Supply schedule and supply curve, Shifts in supply curves, Demand and Supply equilibrium, Demand and Supply equilibrium with indirect taxes, Numerical examples **Indifference Curve (IC):** Properties of IC, Budget Line, Equilibrium	

	of the Consumer with numerical examples **Classification of Goods:** Normal, Inferior and Giffen (to be explained through the Hicksian Approach)	
8-10	**Elasticity of Demand:** Types-Price, Income and Cross Elasticity of demand. **Methods-**Point, Total Outlay method Factors affecting price elasticity of demand Numerical examples **Demand Forecasting:** Least Square Method with numericals Revenue concepts: TR, AR, MR and relation with price elasticity	CO2
11-13	**Production and cost analysis:** Concept of Production and Production function: Laws of production-Short Run and Long Run Production Functions. **Short run Production Function**- The law of variable proportion-The 3 stages. Numerical examples	CO2 & CO3
14-17	**Long run Production Function** - Returns to Scale- Concept of Isoquants, Economies and Dis-economies of scale, Cobb- Douglas Production Function (Functional form), Numerical Examples, Producer Equilibrium, Numerical Examples	CO2 & CO3
18-20	**Cost Concepts:** Short Run Cost curves, Total Cost, Total Fixed Cost, Total Variable Cost, Average cost, Average fixed cost and Average variable cost- Relationship between Average and marginal cost, Numerical Examples. **Break-Even Analysis-** Meaning, Graphical explanation of Breakeven point in terms of (i) output (ii) sales and (iii) as a percentage of the maximum capacity. Margin of Safety, P/V ratio, Examples.	
21-23	~~**Markets:** Concepts and Types: Perfectly Competitive market Characteristics, Short run equilibrium, Numerical Examples~~ ~~Monopoly Market: Characteristics. Monopoly Equilibrium, Numerical Examples~~	
24-25	**TIME VALUE OF MONEY**-Interest Formulae (seven) and their applications, Effective Interest rate, Numerical Examples	CO4 & CO5
26-27	**Evaluation of Investment Proposals**-Present Worth method of comparison (Equal and Unequal lives with examples). Future worth method of comparison and Annual Equivalent Method of comparison with examples.	
28-30	**Economic Appraisal Techniques-**~~Pay Back Period criteria~~, Net Present Value (NPV), Internal Rate of Return (IRR) comparison with MARR, Cost- Benefit analysis, Numerical Examples	
31-33	**DEPRECIATION CALCULATION:** Meaning and Definition**.** **Methods:** Straight Line Method, Declining Balance method, Sum-of-years digit method and Sinking Fund Method (Methods to be explained with illustrations)	
34-36	**MONEY BANKING:** ~~**Functions of commercial banks and central bank**~~ ~~**Central bank** Functions: Bank of Issue, Agent and Advisor to Government, Bankers' Bank, Lender of Last Resort~~ ~~**Commercial Bank functions:** Accepting deposits, Granting loans, Credit creation, Role of commercial banks in a developing economy~~ **Inflation:** reasons, causes and control (Monetary and Fiscal measures). **Fundamentals of Business cycle** (Phases of Business cycle).	CO6