KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
Deemed to be University
BHUBANESWAR-751024
KIIT School of Humanities

AUTUMN SEMESTER- 2024-25

COURSE HANDOUTS **Course code:**

HS30101
Credit: 3-0-0 3
Prerequisite: Nil

Course Title: ENGINEERING ECONOMICS

At the end of the Course the students will be able to

CO1 : Comprehend the significance of different components of Engineering Economics,
CO2 : Analyze the basic economic concepts required for engineers and managers,
CO3 : Develop the problem-solving aptitude through practical examples and case problems,
CO4 : Decide the feasibility of a particular project by the application of different project evaluation Techniques,
CO5 : Use the economic tools in the decision-making process.
CO6 : Survey the current macroeconomic situations in an economy.

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.

2. Text Books

1. Dominick Salvatore, Siddartha K. Rastogi, Managerial Economics: Principles and Worldwide Applications, Oxford University Press, ISBN 9780199467068, 9th Edition,2020
2. D N Dwivedi, H L Bhatia, & S N Maheswari, Engineering Economics: Vikas Publishing House, Noida, ISBN:978-93-5674-625-1, 2nd Edition 2023.
3. James Riggs, David D. Bedworth and Sabah U. Randhawa, Engineering Economics–, 4th Edition, McGraw Hill Education (India) Private Limited, New Delhi, 2016.

3. Reference Book

1. William A. McEachern and Simrit Kaur Micro ECON-A South-Asian Perspective-, Cengage Learning, 2013.
2. Yogesh Maheshwari, Managerial Economics- 3rdEdition, PHI Learning Private Limited,2014.
3. A. Khan, Arshad Noor Siddiquee, Brajesh Kumar, Engineering Economy-Zahid Pearson Publication, 2012.
4. R. Panneerselvam Engineering Economics –, Pub: PHI Learning Private Limited, New Delhi, 9thEdition, 2008.
5. G.S Gupta Managerial Economics, Tata McGraw Hill Education Private Limited, 2nd Edition, 2011.
6. D.M. Mithani, Managerial Economics – Theory and Applications –Himalaya Publication, New Delhi, 6th Edition, 2009.
7. S.B. Gupta, R7. Monetary Economics-Institutions, Theory and Policy- Publication: S. Chand, 1995.
8. R.D. Gupta R8. Macro – Economics –, Publication: Kalyani Publication, 1994.

4. 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 and their applications, 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

5. Evaluation Scheme:

Sl. No.	Evaluation Component	Duration	Percentage of Evaluation	Course Lecture No.		Mapped to CO
				From	To	
1	Assignment-1 [Class activity 1]	01 hour	5	01	05	CO 1
2	Assignment-2 Class Activity 2]	01 hour	5	06	12	CO 2
3	Assignment 3 Quiz-1	01hr	5	13	17	CO3
4	Mid Semester	1.5 hours	20			CO1, CO2, CO3, and CO4
5	Assignment 4 [PPT presentation/Personal Interaction]	01Week	5	18	25	CO 4
6	Assignment-5 [Report write-up on a current Economic topic, assigned by the faculty]	01Week	5	26	30	CO5
7	Assignment 6 [Quiz test 2]	01hr	5	31	36	CO6
8	End Sem	2.5 hours	50	01	36	CO1 to CO 6

6. Question Paper Format:

Pattern

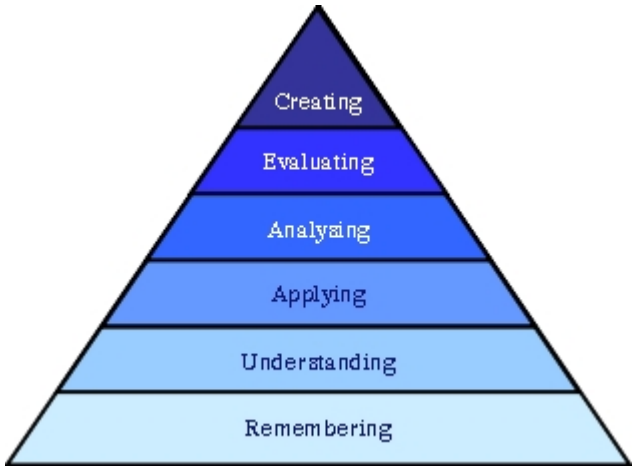
FIVE questions are to be attempted

Question paper consists of four SECTIONS that is, A, B, C and D

Section-A is compulsory and to cover the entire syllabus.

The examinee has to attempt any four questions from the SECTIONS B, C, D with minimum one question from each SECTION.

7. **Bloom's Taxonomy Mapping as per Syllabus**



[L1 (Remembering)-L6(Creating)]

Question number	**Learning levels as per Bloom's taxonomy**	**Description**	**Marks**	**Course Outcomes (CO)/ Performance Indicators (PI)**
Section A			20% of total Marks to be assigned for Q1.	✓ All Cos ✓ PI s related to Learning levels 1 and 2as per Bloom's taxonomy
Q1 (a)-(j)	Learning levels 1 and 2	Questions based on remembering and understanding.		
Section B			16% of total Marks to be assigned to each question	✓ Cos as per the Lesson Plan ✓ PI s related to Learning levels 1, 2 and 3 as per Bloom's Taxonomy
Q2 Q3	Learning levels 1,2, and 3	Questions based on remembering, understanding and application		
Section C				✓ Cos as per the Lesson Plan ✓ PI s related to Learning levels 3 and 4 as per Bloom's taxonomy
Q4 Q5 Q6	Learning Levels 3 and 4	Questions based on application and analysis.		
Section D				✓ Cos as per the Lesson Plan ✓ PI s related to Learning levels 4, 5 and 6 as per Bloom's taxonomy
Q7 Q8	Learning levels 4,5,6	Questions based on analysis, evaluation, design, formulation or innovation.		

8. Chamber Consultation Time: As assigned by the Faculty Members
9. Notices: All notices regarding the course will be sent in the Google Classroom