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)	

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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

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**

Creating
Evaluating
Analysing
Applying
Understanding
Remembering
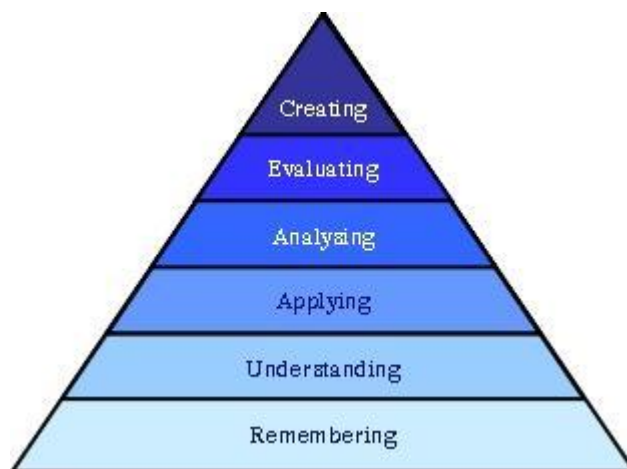
[L1 (Remembering)-L6(Creating)]

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