Lok Jagruti Kendra University
University with a Difference

Diploma
in
Automobile Engineering

LJ Polytechnic

Course Code:025010509
Engineering Economics

Programme / Branch Name	Diploma in Automobile Engineering					
Course Name	Engineering Economics				**Course Code**	025010509
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
ESC: Engineering Science Courses PCC: Program Core Courses
OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week					**Evaluation Scheme**				
L	**T**	**P**	**Total Teaching Hours**	**Total Credit**	**CA**	**CCE**	**SEE (TH)**	**SEE (PR)**	**Total**
3	2	0	5	5	10	40	50	-	100

Legends: L: Lectures T: Tutorial P: Practical
CA: Continuous Assessment (Attendance + Activity)
CCE: Continuous & Comprehensive Evaluation
SEE (Th): Semester End Evaluation (Theory)
SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisite

- ✓ Engineering Mathematics
- ✓ Economics

3. Rationale

Engineering economics is a crucial course for diploma-level engineering students as it provides them with the necessary skills to analyze the financial aspects of engineering projects. This course enables students to make informed decisions based on economic considerations, which is essential in the engineering industry. The course also prepares students to apply economic principles and techniques to engineering projects, including capital budgeting, project analysis, risk analysis, and decision making. Overall, the course equips students with the skills required to make sound financial decisions that can have significant impacts on the success of engineering projects.

4. Objectives

- ✓ To introduce students to the fundamental principles of engineering economics.
- ✓ To provide students with the ability to apply economic principles and techniques to engineering projects.
- ✓ To teach students to analyze the costs and benefits of engineering projects.
- ✓ To teach students the concepts of time value of money, interest rates, cash flows, and depreciation.
- ✓ To enable students to make informed decisions based on economic considerations.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcome	% Weightage	Hours
1.	**Introduction to Engineering Economics**	1.1 Definition and scope of engineering economics 1.2 Role of engineering economics in decision making 1.3 Basic concepts and principles of engineering economics	• Understand the basic concepts of engineering economics. • Describe the importance of engineering economics in engineering projects. • Explain the time value of money and its applications in engineering economics.	10	04
2.	**Time Value of Money**	2.1 Understanding present value, future value, and annuity 2.2 Simple and compound interest rates 2.3 Time value of money applications in engineering projects	• Calculate the future value and present value of a single amount. • Compute the future value and present value of an annuity. • Solve problems related to the equivalence of cash flows.	20	09
3.	**Cost Analysis**	3.1 Classification of costs 3.2 Direct and indirect costs 3.3 Fixed and variable costs 3.4 Overhead costs 3.5 Marginal costs 3.6 Break-even analysis	• Understand the concept of depreciation and its methods. • Explain the tax laws and regulations related to depreciation.	20	09
4.	**Depreciation and taxes**	4.1 Understanding depreciation and its methods 4.2 Taxation and its impact on engineering projects	• Analyze the replacement and maintenance policies for engineering projects. • Understand the life cycle cost analysis for engineering projects.	20	09
5.	**Risk Analysis and Decision Making**	5.1 Introduction to risk analysis 5.2 Probability and its applications	• Understand the concept of decision analysis and its techniques.	30	11

		5.3 Sensitivity analysis and scenario analysis 5.4 Decision-making under uncertainty	• Explain the principles of risk management and their applications in engineering projects.		
				Total Hours	**42**

6. Suggested Specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1.	Introduction to Engineering Economics	50	50	00	0	0	0
2.	Time Value of Money	35	50	15	0	0	0
3.	Cost Analysis	20	50	30	0	0	0
4.	Depreciation and Taxes	30	50	20	0	0	0
5.	Risk analysis and decision making	20	50	30	0	0	0

Legends: R: Remembering U: Understanding
App: Applying C: Creating
E: Evaluating An: Analyzing

7. Reference Books

1) Indian Institute of Technology, Delhi. (2021). Engineering Economics. Retrieved from https://web.iitd.ac.in/~wgsarma/EE.pdf
2) R. Panneerselvam. (2019). Engineering Economics (2nd ed.). PHI Learning Private Limited.
3) A. Ramachandra Aryasri. (2014). Engineering Economics and Financial Accounting (2nd ed.). Tata McGraw Hill Education Private Limited.
4) Managerial Economics and Financial Analysis by S. A. Siddiqui
5) Engineering Economics and Financial Management by V. Veerarajan
6) Financial Management and Accounting Fundamentals for Engineers by P. C. Tulsian and Bharat Tulsian

8. Open Sources (Website, Video, Movie)

1) https://www.youtube.com/watch?v=O5YvyIarK_8
2) https://www.youtube.com/playlist?list=PLUl4u3cNGP63ndsuR9SPKj9Gv-fF3G3dQ
3) https://www.youtube.com/watch?v=Kjv2MkZD4gk
4) https://www.youtube.com/playlist?list=PL1XBp8fLwzT81d0lBt53rqSWt8XQTwS1Z
5) https://www.youtube.com/playlist?list=PLGp9rZ3qY3HevfFyNlQ2dov5C3qSMVv23