## NIRMA UNIVERSITY

Institute:	School of Engineering, Institute of Technology			
Name of Programme:	M. Tech. in Civil Engineering			
_	(Construction Technology and Management)			
Course Code:	6CL252			
Course Title:	Construction Economics			
Course Type:	( Core/ Value Added Course/ Departmental Elective/			
	Institute Elective/ $\Box$ University Elective/( $\Box$ Open			
	Elective Any other)			
Year of introduction:	2022-23			

L	Т	Practical component			С	
		LPW	PW	W	S	
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**Course Learning Outcomes (CLOs):** At the end of the course, the students will be able to –

1.	apply the economic principles for construction projects	(BL3)
2.	appraise the effect of depreciation, taxation & inflation	(BL5)
3.	evaluate the cost-benefit ratio for construction projects	(BL5)

4. select the most economical alternative for construction projects. (BL3)

## Syllabus:

## **Teaching hours: 45**

 $\checkmark$ 

Unit	Syllabus	Teaching hours
Unit-I	Introduction	04
	Introduction to engineering economics, basic economic concepts related to construction industry, economic decision	
	making, payback period	
Unit-II	Engineering Economics	12
	Basic principles, Time value of money, quantifying alternatives for decision making, Cash flow diagrams, Equivalence- Single payment in the future, present payment compared to uniform series payments, Future payment compared to uniform series	
TT '/ TTT	payments, Arithmetic gradient, Geometric gradient.	10
Unit-III	Comparison of Alternatives	12
	comparison of alternatives by Present worth, future worth and annual worth, Rate of return, Incremental rate of return, Break- even comparisons, Capitalized cost analysis, Benefit-cost analysis.	
Unit-IV	Depreciation Methods and Effect of Taxation and Inflation	06
	on comparison of alternative	
	Need, methods of depreciation – straight line, declining balance, sum of the year's purchase, sinking funds etc, tax before and after depreciation, Value Added Tax (VAT). Inflation – definition, procedure to adjust inflation, economic life	

	determination without determination with infla impact of inflation on multipational construction	inflation effect, economic life tion effect, measurement of inflation, a economic evaluations, growth of a companies	
Unit-V	<b>Cost Calculation</b> Purpose, Use, Types of during planning stage, bidding strategy, Approx estimate, Cost indexes, P	08 Estimates, client's budget estimation contractors estimation of cost and cimate estimates, Unit estimate, Factor Parametric estimate, Life cycle cost.	
Unit-VI	<b>Benefit Cost ratio</b> Evaluation of public proj	03 ject, evaluation criteria for benefit cost	
	ratio, case study		
Self Stud	y:	The self-study contents will be declared at commencement of semester. Around 10% of	the the
Suggester	d Readings/ References:	<ul> <li>Shutt R.C., <i>Economics for the construct industry</i>, Longman Scientific and Technical</li> <li>Panneerselvam, R., <i>Engineering Econom</i> Prentice Hall of India</li> <li>Blank, L.T., Tarquin, A.J, Engineering Economic Cost Analysis, Addison Wesley Education</li> <li>Arnold L.,Holm Jr., Johan E. Schaufelberg Dennis Griffin, Thomas Cole, Construction of estimation: Process and Practices, Pearson</li> <li>Jha K.N., Construction Project Management Theory and Practice, Person</li> <li>Gould F.E. <i>Managing the construction proc</i> Prentice hall</li> <li>Ostwald P.E. <i>Construction cost analysis</i></li> </ul>	tion vics, my, s & ger, cost ent: ess, and
Suggestee	d List of Experiments:	<i>estimation</i> , prentice hall	
Suggestee	d Case List:	-	

Suggested List of Experiments: Suggested Case List: