

## IF501: INFRASTRUCTURE PLANNING

CREDITS = 5 (L=3, T=2, P=0)

M. Tech First year, 1<sup>st</sup> Semester

### Teaching and Assessment Scheme:

Teaching Scheme			Credits	Assessment Scheme				
L	T	P		Theory		Practical		Total Marks
			ESE	CE	ESE	CE		
3	2	0	5	70	30	30	20	150

### Course Contents:

Unit No.	Topics	Teaching Hours
1	<b>Infrastructure:</b> Governing Features, Infrastructure Organizations & Systems, Definitions of infrastructure; Types of Infrastructure, Indian scenario	6
2	<b>Infrastructure Planning:</b> Typical infrastructure planning steps; Planning and appraisal of major infrastructure projects; Screening of project ideas; Infrastructure Project Budgeting and Funding; Regulatory Framework; Sources of Funding; Political and social perspectives of infrastructure planning; Life cycle analysis; Project risk analysis.	10
3	<b>Infrastructure Finance:</b> Time value of money, cash flow, Inflation - depreciation, taxes, inflation, Personnel cost - Equipment costs – overheads, Procurement and Efficient use of resources – Statement of Changes in Financial Position (SCFP), Preparation of SCFP on Working Capital Basis, Cash Basis, and Total Resources Basis – SCFP usefulness	8
4	<b>Infrastructure Economics:</b> Concepts and Applications, Principles of methodologies for economic analysis of public works, Social welfare function, indifference curves and trade-offs, Demand curves and price elasticities.	6
5	<b>Evaluation Techniques:</b> Net present value method, Benefit-cost ratio and internal rate of return; Shadow pricing; Accounting for risk and uncertainty.	6
6	<b>Case studies</b> of Advance infrastructure projects planning for special areas and mega projects: such as Smart city, SIR, SEZ, GIFT, DMIC Corridor, Technology Parks and other	6

**List of References:**

1. S. Goodman and M. Hastak, Infrastructure planning handbook: Planning, engineering, and economics, McGraw-Hill, New York, 2006.
2. J. Parkin and D. Sharma, Infrastructure planning, Thomas Telford, London, 1999.
3. P. Chandra, Projects: Planning, analysis, selection, financing, implementation, and review, Tata McGraw-Hill, New Delhi, 2009.
4. J. D. Finnerty, Project financing - Asset-based financial engineering, John Wiley & Sons, New York, 1996.
5. L. Squire and H. G. van der Tak, Economic analysis of projects, John Hopkins University Press, London, 1975.
6. T. J. Webster, Managerial economics: Theory and practices, Elsevier, New Delhi, 2003.