



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Civil and Infrastructure Engineering

Subject Code: 3164012

Semester – VI

Subject Name: Infrastructure Planning and Appraisal

Type of course: Professional Core Subject

Prerequisite: NIL

Rationale:

Infrastructure Planning and Appraisal is providing conceptual understanding of variables involve in planning and evaluation of infrastructure projects. With the help of this knowledge students may be able:

- To provide an overview of Infrastructure scenario in India and their sector specific features
- To provide required knowledge and skills planning and appraising sustainable civil Infrastructure systems and their interactions
- To make student aware of the procurement management process involved in the infrastructure projects

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE	PA(M)	Viva	PA (I)		
3	1	0	4	70	30	0	0	100

Contents:

Sr. No	Topics	Hrs.
1	Introduction: Infrastructure scenario in India: Sector wise details, infrastructure players, key issues and government initiatives in transport, power, telecom, urban and rural infrastructure sectors	8
2	Infrastructure Project Planning: Players in Infrastructure, Long term planning issues of infrastructure projects, Infrastructure planning process, Multi-criteria analysis for comparison of infrastructure alternatives; Infrastructure delivery methods including PPP, Infrastructure economics and financial models, Life cycle costing, Project structuring, Project Risks, Risk allocation and management, Integration of infrastructure systems	15
3	Infrastructure Project Appraisal: Demand Analysis & Forecasting, Technical Analysis, Economic and Financial Analysis, Environmental Clearance Procedure in India, Environment Impact Assessment: Purpose & Process, EIA Hierarchy, Impact Indicators	10
4	Infrastructure Project Management: Project governance, Project management planning and control systems, Stake holder management, Legal and contractual	6



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	issues, Procurement of infrastructure provider: process, pricing and negotiation, MIS for infrastructure projects	
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Course Outcomes: After successful completion of the course the students will be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Understand about the key infrastructure sectors and their related planning and management issues	30 %
CO-2	Appraising an infrastructure project based on demand, technical and economic point of view	50 %
CO-3	Know about the management process involved in the procurement of infrastructure projects	20 %

Reference Books:

1. James Parkin, D. Sharma, Infrastructure Planningg, Thomas Telford, 1999
2. W. Ronald Hudson, Waheed Uddin, Ralph C. Haas, Infrastructure Management: Integrating Design, Construction, Maintenance, Rehabilitation and Renovation, McGraw-Hill Professional, 1997.
3. S. Goodman and M. Hastak, Infrastructure planning handbook: Planning, engineering, and economics, McGraw-Hill, New York, 2006.
4. J. D. Finnerty, Project financing - Asset-based financial engineering, John Wiley & Sons, New York, 1996.
5. Rajarshi Majumder, Infrastructure and Development in India, Interlinkages and Policy Issues, Rawat Publications, 2008.
6. P. Chandra, Projects: Planning, analysis, selection, financing, implementation, and review, Tata McGraw-Hill, New Delhi, 2009

List of Tutorials:

- Infrastructure sector survey
- Time Value of Money
- Formulate five infrastructure business cases
- Identify major factors governing the choice of selection along with their weightage
- Do multi criteria decision analysis for ranking the project proposals
- Do locational analysis for the shortlisted project proposal
- Do the demand analysis for the proposed project & identify the revenue stream
- Do the technical analysis to identify the cost input for the proposed project
- Do the financial analysis
- Propose a contract model for procuring the infrastructure

Suggested Specification table with Marks (Theory):



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Distribution of Theory Marks

R Level	U Level	A Level	N Level	E Level	C Level
25	25	20	15	15	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above

List of Open Source Software/learning website: www.nptel.iitm.ac.in/courses/