INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)**
SEMESTER	**7**
COURSE TITLE	**INFRASTRUCTURE ENGINEERING AND MANAGEMENT**
COURSE CODE	**01CI0730**
COURSE CREDITS	**2**

Objective:

1 To provide an overview of Infrastructure Project
2 To develop an understanding of Infrastructure Master Plan, Development Plan and various project activities involved
3 To describe the characteristics of an Infrastructure Project

Course Outcomes: After completion of this course, student will be able to:

1 Analyze comprehensive infrastructure master plans by utilizing multi-criteria analysis and life cycle assessment techniques
2 Prepare project development plan for Infrastructure organizations and systems.
3 Evaluate various financial models and risk management strategies in Public-Private Partnership (PPP) infrastructure projects
4 Apply innovative maintenance techniques and risk mitigation strategies to ensure the sustainability and longevity of infrastructure systems

Pre-requisite of course: Building Planning & Drawing

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Infrastructure** Definitions of infrastructure, Governing Features, Historical overview of Infrastructure development in India, Infrastructure Organizations & Systems	8
2	**Infrastructure Planning** Typical infrastructure planning steps, Planning and appraisal of major infrastructure projects, Screening of project ideas, Life cycle analysis, multi-criteria analysis for comparison of infrastructure alternatives, Procurement strategies, Scheduling and management of planning activities, Infrastructure Project Budgeting and Funding, Regulatory Framework, Sources of Funding	10

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Contents : Unit	Topics	Contact Hours
3	**Public-Private Sector Participation** Structure of PPP, benefits, problems, challenges and financial models Managing risk in private infrastructure projects	6
4	**Infrastructure Maintenance and Risk Management** Introduction, requirement and techniques for infrastructure maintenance Risk in infrastructure and strategies for risk management	4
Total Hours		**28**

Textbook :

1 Projects: Planning, analysis, selection, financing, implementation, and review, Chandra P., Tata McGraw-Hill, 2001

References:

1 Infrastructure Planning Handbook. Planning, Engineering, and Economics, Infrastructure Planning Handbook. Planning, Engineering, and Economics, Goodman S. and Hastak M., McGraw-Hill, 2005

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
15.00	25.00	20.00	20.00	10.00	10.00

Instructional Method:

1 At the start of course, the course delivery pattern, prerequisite of the subject will be discussed

2 Lectures will be taken in class room with the use of multi-media presentations, white board– mix of both

3 Attendance is compulsory in lectures which carries a 5% component of the overall evaluation

4 Minimum two internal exams will be conducted and average of two will be considered as a part of 15% overall evaluation

5 Surprise tests/Quizzes will be conducted which carries 5% component of the overall evaluation

Supplementary Resources:

1 https://onlinecourses.nptel.ac.in/noc21_mg81/preview

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Supplementary Resources:

2 https://onlinecourses.nptel.ac.in/noc20_mg28/preview