

Financing Infrastructure Projects - Web course

COURSE OUTLINE

The course is designed to introduce the unique characteristics of financing infrastructure projects to students of civil engineering who are going to play a major role in development and management of infrastructure projects. Furthermore, critical issues in infrastructure financing such as government role in infrastructure creation, regulation, frameworks for private sector participation, public private partnerships, and risk management are dealt in detail. The course includes few case studies to demonstrate the application of the theoretical concepts on infrastructure financing such as procurement process, risk management and project finance.

Contents

Introduction to infrastructure financing; Role of governments in financing infrastructure projects; Economic multiplier effects of infrastructure; Means of financing-public finance and private finance; Procurement of infrastructure projects through Public Private Partnership route-Types of PPP models, Contractual structure of PPP projects, Value for money evaluation, Lifecycle of PPP projects, PPP procurement process; Concessions for infrastructure-Design and award, Allocation of responsibilities, Price setting, Penalties and bonuses, Dispute resolution; Financing infrastructure projects with private capital-Introduction to project finance concept, Analyzing project viability, Designing security arrangements, Structuring the project, Preparing project financing plan; Risk management of infrastructure projects-Risk associated with various infrastructure projects, Risk identification techniques, Risk allocation frameworks, Risk mitigation strategies; Ratings of infrastructure projects-Role of credit ratings in financial infrastructure projects, Rating frameworks used by national and international credit agencies; Case studies.

Module No	Module Topic	No. of Hours
1	Infrastructure Development - Introduction	3
2	Public Private Partnerships – Procurement Process	8
3	Concession – Design and Award	8
4	Risk Management of Infrastructure Projects	8
5	Project Finance	9
6	Credit Rating of Infrastructure Projects	4
	Total	40

NPTEL

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Civil Engineering

Additional Reading:

Guidelines issued by government agencies, financial institutions, multilateral institutions and technical papers on procurement of infrastructure projects across various sectors.

Coordinators:

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Sl. No.	Topic	Lecture Hour
Module I		
1	Definition of infrastructure; Multiplier effects of infrastructure development on economic development of the nation	1
2	Sources of financing infrastructure projects: Traditional and private investments; Various financial instruments	1
3	Limitations of traditional procurement system of infrastructure; Legal frameworks and Incentives for private sector participation in infrastructure development	1
Module II		
4	Introduction to infrastructure development through PPP route; Benefits of PPP mode of procurement; Types of PPP Models and their contractual structure	1
5	Stakeholders' perspectives: Granting authority, Funders and Concessionaire	1
6	Government's role in successful PPP projects	1
7	Financial and Economic Appraisal of BOT Projects; VFM evaluation	2
8	PPP procurement process; Lifecycle of PPP projects	1
9	Contractual package of PPP project; Bankable concession agreement	1
10	Case study – Procurement process of Indian PPP projects	1
Module III		
11	Introduction to concession design and award	1
12	Concession Design: Price setting; Price adjustment; Specific performance targets; Penalties and bonuses; Public parties' security rights; Duration, termination, and compensation; Force majeure and other unforeseen changes; Dispute settlement	4
	Concession Award: Competitive bidding; Direct negotiations and unsolicited proposals; Competitive negotiations; Prequalification and	

13	unsolicited proposals, Competitive negotiations, Prequalification and shortlisting; Bid structure and evaluation; Bidding rules and procedures	2
14	Case study – Model concession agreements of highways projects in India	1
Module IV		
15	Risks associated with various infrastructure projects; Introduction to risk management concept	2
16	Risk analysis techniques	1
17	Risk mitigation strategies	1
18	Risk allocation frameworks of major infrastructure projects procured through various PPP modes	2
19	Computer-based approach to risk management in infrastructure finance	1
20	Case study – Risk allocation frameworks of Indian PPP projects	1
Module V		
21	Introduction to project financing concept	3
22	Analysis of project viability	1
23	Designing security arrangements	1
24	Preparing the project financing plan	3
25	Case study – Financial structure and infrastructure project finance : the Hong Kong Western Harbour Crossing	1
Module VI		
26	Introduction to credit rating of infrastructure projects and role of credit ratings in financing infrastructure projects	1
27	Rating frameworks of various national and international credit rating agencies for infrastructure projects in various sectors.	3

References:

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2. Finnerty, J. D. (1996). Project financing - Asset-based financial engineering. New York: John Wiley & Sons, Inc.
3. Merna, T., & Njiru, C. (2002). Financing infrastructure projects (First ed.). London: Thomas Telford.
4. Nevitt, P. K., & Fabozzi, F. J. (2000). Project financing (7 ed.). London, UK: Euromoney Books.
5. Raghuram, G., Jain, R., Sinha, S., Pangotra, P., & Morris, S. (2000). Infrastructure Development and Financing: Towards a Public-Private Partnership: MacMillan.
6. Tinsley, R. (2002). Project Finance in Asia Pacific: Practical Case Studies. London, UK: Euromoney Books.
7. UNIDO. (1996). Guidelines for infrastructure development through Build-Operate-Transfer (BOT) projects. Vienna: UNIDO.
8. Walker, C., & Smith, A. J. (1995). Privatized infrastructure: the Build Operate Transfer approach. London: Thomas Telford.
9. Yescombe, E. R. (2002). Principles of Project Finance. California: Academic Press.
10. Kurowski, L., & Sussman, D. (2011). Investment project design - A guide to financial and economic analysis with constraints. New Jersey: John Wiley & Sons.
11. Pretorius, F., Lejot, P., McInnis, A., Arner, D., & Hsu, B. F.-C. (2008). Project finance for construction and infrastructure: Principles and case studies. Oxford: Blackwell Publishing.
12. Weber, B., & Alfen, H. W. (2010). Infrastructure as an asset class - Investment strategies, project finance and PPP. West Sussex: John Wiley & Sons