

PIUI 7001	Basics of Realty & Construction Management	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Graduate				
Co-requisites	Good Command in MS Word and MS Powerpoint				

Course Objectives

- a) To study the various phases and functions involved during the execution of an infrastructure project.
- b) To give exposure to concrete technology, conventional & modern construction materials, and construction equipment
- c) To familiarize with the key management practices and standards used in construction, including the application of IT.

Course Outcomes

On completion of this course, the students will be able to

- CO1: Understanding the issues & challenges in the Realty and construction Sector
CO2: To develop managerial skills required for Construction Planning & formulation.
CO3: Analyzing optimization techniques for Construction Planning & Costing.
CO4: Integrating the knowledge for Project execution and control.
CO5: To integrate the contracting process as applied in Real Estate Projects.

Catalog Description

The course focuses on the planning, execution and management of construction projects. The work of the construction manager mainly comprises the following:

- Pre-tender planning and programming of projects to determine the optimal use of resources
- Post-tender refining and monitoring of construction programmes to ensure the smooth running and the completion of contracts on time
- Quality control of labour and materials used in buildings
- Controlling and managing sub-contractors, suppliers and the like
- Co-ordinating the handing over of the completed projects

The ideal construction manager is a practical problem-solver and a self-motivated achiever who enjoys getting things right the first time. Applicants should be goal-orientated, enjoy working in a robust and predominantly outdoor environment, and have the ability to communicate with and motivate people at all levels.

Good human relations, as well as the ability to think logically and report on situations in an orderly manner, are important as the construction manager needs to develop a close working relationship with the architect, client, engineer and other members of the professional team.

Course Content

Unit I: 4.5 lecture hours

Construction Business and Contract Management

Introduction- Course objectives, course breakup and evaluation, Understanding the construction business, The parties in construction and the rules for participation, Contract Management , Types of contract, Bidding process and Selection

Unit II: 6 lecture hours

Construction Planning and Equipment, Project planning techniques, Introducing CPM, PERT., Computer applications in engineering planning and construction, Overview of equipment used in construction, Cranes, pumps, trucks, hoists, Equipment selection, Criteria for decision making

Unit III: 7.5 lecture hours

Building construction, understanding the work breakdown structure (Civil, Mechanical and Electrical), Concrete Technology, Concrete mix, strength, tests, Construction site , administration, Organization chart, Time office, Management of stores, Procedures for quality control, Inspection, tests & Audit

Unit IV: 6 lecture hours

ISO standards, MS, PDCA Cycle, Site accidents and prevention, Types of accident, proactive approach in accident prevention, Health and Safety standards, OSHA, Building and other Construction Workers Act, Ergonomics, Performance measurement in construction, Macro level, Micro level

Unit V: 3 lecture hours

Productivity measurement and financial statements, Labor constants, JCR, Balance sheet
Introducing Facilities Management, PEST in building maintenance

Unit VI: 3 lecture hours

Building Maintenance standards, National Building Code, Real Estate business

Unit VII: 3 lecture hours

Current scenario and challenges, Six sigma practices

Unit VIII: 3 lecture hours

Knowledge Management, Work sampling

Text Books and Journals

1. Construction Project Management by Kumar Neeraj Jha
2. Construction Project Management: Planning, Controlling and Scheduling by K.K. Chitkara
3. Construction Management Fundamentals by Knuston K
4. Construction Planning, Equipment and Methods by Robert L Peurifoy
5. Handbook of Construction Management by Joy.P.K
6. Construction Management and Machinery by Gupta B.L.
7. Construction planning and management by Gahlot P.S.
8. Journal of Construction Engineering and Management
9. Journal of Management in Civil Engineering
10. NICMAR Journal of Construction Management

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination

Examination Scheme:

Components	Presentation/Assignment/Projects etc	ESE
Weightage (%)	50	50

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Analyzing the issues & challenges in the Reality and construction Sector	PO 1,2, ,4,7,8,9,10, 11,12,13, 14
CO2	To develop managerial skills required for Construction Planning & formulation.	PO 1,2, 3, 7,8,9,10, 11,14
CO3	Integrating optimization techniques for Construction Planning & Costing.	PO 1,2, 3, 8,9,10, 11, 12,13,14
CO4	Integrating the knowledge for Project execution and control.	PO 4,5,6, 8,7, 12,13, 14
CO5	To Integrate the contracting process as applied in Real Estate Projects.	PO 1,2, 3, 4,8,10, 11, 13,14

Course Outcomes	CO 1	CO 2	CO 3	CO 4	CO5
PO 1	3	3	3	2	3
PO 2	3	3	3	2	3
PO 3	2	3	3	2	3
PO 4	3	2	2	3	3
PO 5	2	2	2	3	2
PO 6	2	2	2	3	1
PO 7	3	3	2	3	2
PO 8	3	3	3	3	3
PSO 9	3	3	3	2	2
PSO 10	3	3	3	2	3
PSO 11	3	3	3	2	3
PSO 12	3	2	3	3	2
PSO 13	3	2	3	3	3
PSO 14	2	3	3	3	3

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
PIUI 7001	Basics of Realty & Construction Management	3	2	3	3	3	2	3	3	2	2	2	2	2	3
		Students will demonstrate strong conceptual knowledge and execution in soft and hard infrastructure planning, development, management, financing, regulation and governance.	Students will demonstrate effective understanding of infrastructure planning and development, utility & energy management, urban transportation including metro rail, e-vehicle with charging and other modes of urban surface transportation, water supply and sewerage, smart city planning and effective financing urban infrastructure.	Students will demonstrate analytical skills to understand issues with remedial solutions relating to urban infrastructure. of soft and hard infrastructure	Students will exhibit the ability to integrate planning, construction & development, operation & management, financing, regulation and governance of urban infrastructure projects and facilities.	Students will exhibit the ability to integrate technical, economic, social and regulatory frameworks for urban infrastructure sector planning and resource management.	Students will exhibit deployable skills pertinent to urban hard and soft infrastructure sector and smart city development and management.	Students will be able to develop and evaluate alternate managerial choices and identify optimal solutions.	Students will demonstrate effective application capabilities of their conceptual understanding to infrastructure planning, development and management.	Students will be able to exhibit effective decision-making skills, employing analytical and critical thinking ability for planning, development and management of soft and hard infrastructure.	Students will demonstrate effective oral and written communication skills in the professional context.	Students will be able to work effectively in teams and demonstrate team-working capabilities.	Students will exhibit leadership and networking skills.	Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the context of urban planning, development and management including cost effective financing and good governance.	Students will demonstrate employability traits in line with the needs of changing hard and soft urban infrastructure sector.

1=weakly mapped
2= moderately mapped
3=strongly mapped

16	Explain how a Financial Consortium and a project SPV is created. Support the answer with a Block Diagram	[10]	CO5																																	
SECTION D (Case Study)																																				
Case Study		[30]	CO3																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="180 401 594 457" style="text-align: center;">Activity</th> <th data-bbox="594 401 992 457" style="text-align: center;">Duration</th> <th data-bbox="992 401 1276 457" style="text-align: center;">Predecessor</th> </tr> </thead> <tbody> <tr> <td data-bbox="180 457 594 520" style="text-align: center;">A</td> <td data-bbox="594 457 992 520" style="text-align: center;">2</td> <td data-bbox="992 457 1276 520" style="text-align: center;">-</td> </tr> <tr> <td data-bbox="180 520 594 583" style="text-align: center;">B</td> <td data-bbox="594 520 992 583" style="text-align: center;">4</td> <td data-bbox="992 520 1276 583" style="text-align: center;">-</td> </tr> <tr> <td data-bbox="180 583 594 646" style="text-align: center;">C</td> <td data-bbox="594 583 992 646" style="text-align: center;">2</td> <td data-bbox="992 583 1276 646" style="text-align: center;">A,B</td> </tr> <tr> <td data-bbox="180 646 594 709" style="text-align: center;">D</td> <td data-bbox="594 646 992 709" style="text-align: center;">7</td> <td data-bbox="992 646 1276 709" style="text-align: center;">B</td> </tr> <tr> <td data-bbox="180 709 594 772" style="text-align: center;">E</td> <td data-bbox="594 709 992 772" style="text-align: center;">9</td> <td data-bbox="992 709 1276 772" style="text-align: center;">C,D</td> </tr> <tr> <td data-bbox="180 772 594 835" style="text-align: center;">F</td> <td data-bbox="594 772 992 835" style="text-align: center;">2</td> <td data-bbox="992 772 1276 835" style="text-align: center;">A,C,D</td> </tr> <tr> <td data-bbox="180 835 594 898" style="text-align: center;">G</td> <td data-bbox="594 835 992 898" style="text-align: center;">3</td> <td data-bbox="992 835 1276 898" style="text-align: center;">F</td> </tr> <tr> <td data-bbox="180 898 594 961" style="text-align: center;">H</td> <td data-bbox="594 898 992 961" style="text-align: center;">6</td> <td data-bbox="992 898 1276 961" style="text-align: center;">E,F</td> </tr> <tr> <td data-bbox="180 961 594 1024" style="text-align: center;">I</td> <td data-bbox="594 961 992 1024" style="text-align: center;">5</td> <td data-bbox="992 961 1276 1024" style="text-align: center;">G,H</td> </tr> <tr> <td data-bbox="180 1024 594 1087" style="text-align: center;">J</td> <td data-bbox="594 1024 992 1087" style="text-align: center;">7</td> <td data-bbox="992 1024 1276 1087" style="text-align: center;">I</td> </tr> </tbody> </table>				Activity	Duration	Predecessor	A	2	-	B	4	-	C	2	A,B	D	7	B	E	9	C,D	F	2	A,C,D	G	3	F	H	6	E,F	I	5	G,H	J	7	I
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<ol style="list-style-type: none"> 1. Draw the Network Diagram. (10) 2. Find out the Critical path. (20) 																																				