

# **Techno India NJR Institute of Technology**

(Approved by AICTE, New Delhi and Affiliated to Rajasthan Technical University Kota (Raj.))

## **Course File**

***Subject Title/Subject Code: Project Planning and Construction  
Management 8CE4-01***

Semester: VIII Year: IV

Name of the Faculty: Mr. Rakesh Yadav

E-mail id: [rakesh.yadav@technonjr.org](mailto:rakesh.yadav@technonjr.org)

### **Class Schedule**

**Total Number of Lectures: 40**

#### **i) Course Objective**

The objective of this course is to equip students with the knowledge and skills required for effective project management in construction. This includes understanding the financial evaluation of projects, project planning and scheduling techniques, cost and time control methods, contract management, and safety protocols. Students will also learn the essential elements of project management, including risk assessment, project organization, legal aspects of contracts, and the application of modern tools such as Project Management Information Systems to ensure efficient and sustainable project execution.

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## INDEX - COURSE FILE

S. No.	CONTENT / ITEM NO.	PAGE NO.	STATUS
1	Vision And Mission Of The Institute		
2	Vision And Mission Of The Department		
3	Program Educational Objective Of Department (PEO's)		
4	Program Outcomes Of Department (PO's)		
5	Course Outcome (COs)		
6	COs mapping with Pos and PSOs		
7	Academic Calendar		
8	Evaluation Scheme		
9	Course Syllabus		
10	Prescribed Books		
11	Copy Of Time Table		
12	Course Schedule Plan		
13	Assignment Sheet (Unit Wise)		
14	Quiz Questions (One From Each Unit)		
15	Question Papers Of Mid Term Exam-I		
16	Marks and Gap Analysis in Mid Term I		
17	Remedial Action Taken To Remove the Gaps after mid Term I		
18	Question Papers Of Mid Term Exam-II		
19	Gap Analysis in Mid Term II		
20	Remedial Action Taken To Remove the Gaps after mid Term II		
21	Model Question Paper With Key Solution		
22	University Question Paper (Last one year)		
23	Student Performance Report		
24	Result Analysis		

# **Techno India NJR Institute of Technology**

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## **VISSION & MISSION OF INSTITUTE**

### **Vision**

Empowering student with recent and emerging technologies to create innovative technical leaders capable of contributing to industrial and societal needs for betterment of mankind across the globe.

### **Mission**

**M1:** To provide dynamic learning environment to students by providing constant exposure to latest technologies by linking closely with the industries.

**M2:** To establish effective interface with industry to obtain live problems to enhance critical thinking and problem-solving skills among students and consultancy projects for faculty.

**M3:** To provide avenues and opportunities to faculty for domain specific trainings and qualification upgradation.

**M4:** To develop ethical leaders with strong communication skills.

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## **VISION & MISSION OF DEPARTMENT**

### **Department Vision**

To increase students learning of fundamentals for designing and planning of buildings and latest technologies through industry-aligned project-based learning which will help in transforming students to be good civil engineering professionals leading to innovation and incubation of new ideas.

### **Department Mission**

**M1:** To create experimental learning through solving problems of Government, Society, Smart Cities, Industry and other entities.

**M2:** To teach the latest technologies to the students as beyond the syllabus activity so that they are updated and industry ready.

**M3:** To enable engineering students, understand industry-aligned technologies and learn to find solutions from their early engineering days and this is the only way to produce globally relevant engineers solving real-life problems applying current technologies.

**M4:** To enable students to generate projects through problem faced by and requirement of Smart cities, industry, Government and other entities whereby those outlined problem statements are to be studied deeply by a group of faculty members to convert them into real-time project format.

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## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

**PEOs 1:** To provide an in-depth understanding of the fundamentals of Civil Engineering and create a foundation for lifelong learning to facilitate a progressive career in the construction Industry, as an entrepreneur and in pursuit of higher studies.

**PEOs 2:** To equip the students with technical and analytical skills to develop innovative solutions to complex real-life problems using existing and novel technologies. To equip the students with good communication and interpersonal skills, inter-disciplinary teamwork and leadership skills to enable them to fulfill professional responsibilities.

**PEOs 3:** To expose them to various contemporary issues which will enable them to become ethical and responsible towards themselves, co-workers, Society and the Nation.

**PEOs 4:** To make the student's industry ready by imparting education related to the latest technologies so that they can grab future industry jobs.

## **PROGRAM SPECIFIC OUTCOMES (PSO's)**

**PSO1:** To be aware of and initiate some-work on future technologies and new developments which may impact the future Industry 4.0.

**PSO2:** Hands on training on upcoming technologies and project-based learning.

**PSO3:** Get exposure to BIM (Building Information Modeling).

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## PROGRAMME OUTCOMES (POs)

**A student will develop:**

**PO01. ENGINEERING KNOWLEDGE:** An ability to apply knowledge of Mathematics, Science and Engineering Fundamentals in Electronics and Communication Engineering.

**PO02. PROBLEM ANALYSIS:** Ability to analyze and interpret data by designing and conducting experiments. Develop the knowledge of developing algorithms, designing, implementation and testing applications in electronics and communication related areas.

**PO03. DESIGN/ DEVELOPMENT OF SOLUTION:** An ability to Design a system Component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

**PO04. CONDUCTION OF INVESTIGATION OF COMPLEX PROBLEMS:** Ability to Identify, formulate and solve engineering problems.

**PO05. MODERN TOOL USAGE:** An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

**PO06. THE ENGINEERING AND SOCIETY:** Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

**PO07. ENVIRONMENT & SUSTAINABILITY:** Understand the impact of professional engineering solution in societal and environmental contexts, and demonstrate the knowledge of, and need of sustainable development.

**PO08. ETHICS:** An ability to understand the professional, social and ethical responsibility.

**PO09. INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO10. COMMUNICATION:** An ability to Communicate effectively in order to succeed in their profession such as, being able to write effective reports and design documentation, make effective presentations.

**PO11. PROJECT MANAGEMENT & FINANCE:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in team, to manage projects and in multidisciplinary environment.

**PO12. LIFE-LONG LEARNING:** Recognize the need and an ability to engage in life-long learning.

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## COURSE OUTCOMES (COs) OF THE SUBJECT

CO No.	Mapping	Statement
CO48401.1	Remembering	Students will be able to understand construction risk management, the roles and responsibilities of all constituencies involved in the design and construction process.
CO48401.2	Understanding	Students will be able to understand concept of network analysis CPM and PERT methods and network rules and regulations
CO48401.3	Applying	Students will be able to design a network diagram to create the project schedules, Critical path, slack in between activities using CPM & PERT techniques.
CO48401.4	Analyzing	Students will be able to Identify the project cost and time control using network techniques.
CO48401.5	Evaluating	Students be able to Analyze about the contract management.

## COS MAPPING WITH POs AND PSOs

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO48401.1	3	2	2	2	1	0	0	0	1	0	2	1	2	2	1
CO48401.2	2	2	2	2	1	0	0	0	1	0	2	1	2	2	1
CO48401.3	3	2	2	2	1	0	0	0	1	0	3	1	2	2	1
CO48401.4	2	2	2	2	1	0	0	0	1	0	3	2	2	1	1
CO48401.5	2	2	2	2	1	0	0	0	1	0	3	2	2	1	1
CO48401 (AVG)	2.4	2	2	2	1	0	0	0	1	0	2.6	1.4	2	1.6	1

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## UNIVERSITY ACADEMIC CALENDAR

### Academic Calendar for Even Semester for Session

Course: Bachelor of Technology (B.TECH.)				
Course: Bachelor of Technology (B.TECH.)				
Semester	II	IV	VI	VIII
Commencement of Classes	26.02.2024	15.02.2024	15.02.2024	02.01.2024
First Mid Term	02.04.2024	20.03.2024	20.03.2024	15.02.2024
Second Mid Term	03.06.2024	06.05.2024	06.05.2024	21.03.2024
Last Working Day	10.06.2024	31.05.2024	31.05.2024	20.04.2024
Commencement of Practical Exams	01.07.2024	03.06.2024	03.06.2024	22.04.2024
Commencement of Theory Exams	19.06.2024	14.06.2024	15.06.2024	02.05.2024
Project (VIII)	06.05.2024 to 15.05.2024			
Practical Training (After II Sem.)	15.07.2024 To 31.07.2024			
Practical Training (After IV Sem.)	01.07.2024 To 17.08.2024			
Practical Training (After VI Sem.)	01.07.2024 To 17.08.2024			
Commencement of Classes for next Odd Semesters (2023-24)	I	III	V	VII
	01.08.2024	01.08.2024	20.08.2024	20.08.2024

### Academic Calendar of Institute

#### Academic Calendar for even semester for session 2023-24

#### **Academic Calendar for even Semester for Session 2023-24 (Even Semester)**

Course: Bachelor of Technology (B.TECH.)				
Semester	II	IV	VI	VIII
<b>Commencement of Classes</b>	26-02-2024	15-02-2024	15-02-2024	2-01-2024
<b>Commencement of First Mid Term</b>	20-04-2024	25-03-2024	25-03-2024	15-02-2024
<b>Commencement of Second Mid Term</b>	05-06-2024	24-05-2024	24-05-2024	21-03-2024
<b>Last Working Day</b>	15-06-2024	31-5-2024	31-5-2024	20-04-2024
<b>Commencement of Practical Exams</b>	01-07-2024	04-6-2024	03-6-2024	22-04-2024
<b>Commencement of Theory Exams</b>	19-6-2024	15-6-2024	14-6-2024	02-05-2024
<b>Project (VIII)</b>	06.05.2024 to 15.05.2024			
<b>Practical Training (After II Sem.)</b>	15.07.2024 To 31.07.2024			
<b>Practical Training (After IV Sem.)</b>	01.07.2024 To 17.08.2024			
<b>Practical Training (After VI Sem.)</b>	01.07.2024 To 17.08.2024			



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## Evaluation Scheme

### FACULTY DETAILS:

Name of the Faculty : Rakesh Yadav  
Designation : Assistant Prof.  
Department : Civil Engineering

### 1. TARGET

- a) Percentage Pass: 100%  
b) Percentage I class: 60 %

### 2. METHOD OF EVALUATION

- Continuous Assessment Examinations (Mid-Term 1, Mid-Term 2)  
 Assignments / Seminars  
 Mini Projects  
 Quiz  
 Semester Examination

Others \_\_\_\_\_

3. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

4. Take the help of creative tools to stimulate creativity. Include slide presentations, demonstration or forms of visual exercises that will excite the young minds and capture their interest.

**Signature of Faculty:**

**Signature of HOD**

**UNIVERSITY SYLLABUS**



**RAJASTHAN TECHNICAL UNIVERSITY, KOTA**

Syllabus

IV Year- VIII Semester: B. Tech. (Civil Engineering)

**8CE4-01 Project Planning and Construction Management**

**Credit 3**  
**3L+0T+0P**

**Max. Marks: 100(IA:30, ETE:70)**  
**End Term Exam: 3Hours**

SN	Course Content	Hours
1	<b>INTRODUCTION:</b> Objective, scope and outcome of the course	1
2	<b>FINANCIAL EVALUATION OF PROJECTS AND PROJECT PLANNING:</b> Capital investment proposals, criterions to judge the worthwhile of capital projects viz. net present value, benefit cost ratio, internal rate of return, Risk cost management, main causes of project failure. Categories of construction projects, objectives, project development process, Functions of project management, Project management organization and staffing, Stages and steps involved in project planning, Plan development process, objectives of construction project management.	7
3	<b>PROJECT SCHEDULING:</b> Importance of project scheduling, project work breakdown process – determining activities involved, work breakdown structure, assessing activity duration, duration estimate procedure, Project work scheduling, Sequence of construction activities, Project management techniques – CPM and PERT networks analysis, concept of precedence network analysis.	8
4	<b>PROJECT COST AND TIME CONTROL:</b> Monitoring the time progress and cost controlling measures in a construction project, Time cost trade-off process: direct and indirect project costs, cost slope, Process of crashing of activities, determination of the optimum duration of a project, updating of project networks, resources allocation.	8
5	<b>CONTRACT MANAGEMENT:</b> Elements of tender operation, Types of tenders and contracts, Contract document, Legal aspects of contracts, Contract negotiation & award of work, breach of contract, determination of a contract, arbitration.	8
6	<b>SAFETY AND OTHER ASPECTS OF CONSTRUCTION MANAGEMENT:</b> Safety measures to be followed in various construction works like excavation, demolition of structures, explosive handling, hot bitumen work. Project Management Information System – Concept, frame work, benefits of computerized information system. Environmental and social aspects of various types of construction projects.	8
	<b>Total</b>	<b>40</b>

**PRESCRIBED BOOKS**

1. Project management with CPM/PERT by B.C. Punmia, Laxmi Publication (P) Ltd.
2. Construction Project Management by K.K Chitkara, Tata Mc Graw Hills.
3. Project Management by Modder & Phillph, CBS Publishers.
4. Project Planning and Control by Punmia and Khandelwal K.K., Laxmi Publication (P) Ltd.
5. Project Management by Choudhary S., Tata McGraw Hill Publishing Company Limited, New Delhi.

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## WEEKLY TIME TABLE OF THE TEACHER

First Time Table: with effect from (Date):

Day	1	2	3	4	5	6	7
Monday						PPCM	
Tuesday							
Wednesday						PPCM	
Thursday							
Friday						PPCM	
Saturday							

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## COURSE-PLAN

Lect.No.	Unit	TOPICS	Teaching Methods/ Teaching Aids
1	1	Financial evaluation of projects and project planning: Students should be able to understand of capital investment proposals, criterions to judge the worth whileness of capital projects.	White Board
2	1	Students should be able to compute net present value, benefit cost ratio, internal rate of return	White Board
3	1	Students should be able to compute risk cost management, main causes of project failure.	White Board
4	1	Students should be able to write Categories of construction projects, objectives, project development process	White Board
5	1	Students should be able to functions of project management, Project management organization and staffing	White Board
6	1	Students should be able to identify stages and steps involved in project planning	White Board
7	1	Students should be able to identify stages and steps involved in project planning	White Board
8	2	PROJECT SCHEDULING: Students should be able to understand Importance of project scheduling	White Board
9	2	Students should be able to identify project work breakdown process and determine activities involved	White Board
10	2	Students should be able analyze work breakdown structures, assessing activity duration.	White Board
11	2	Students should be able write duration estimate procedure and Project work scheduling	White Board
12	2	Students should be able to apply project management techniques- CPM network analysis	White Board
13	2	Students should be able to apply PERT network analysis	White Board
14	2	Students should be able create a network diagram using PERT network analysis	White Board
15	2	Students should be able create a network diagram using PERT network analysis	White Board
16	3	PROJECT COST AND TIME CONTROL: Students should be able to understand monitoring the time progress	White Board
17	3	Students should be able to identify of cost controlling measures in a construction project.	White Board

# Techno India NJR Institute of Technology

(Approved by AICTE, New Delhi and Affiliated to Rajasthan Technical University Kota (Raj.))

18	3	Students should be able to write time cost trade-off process: direct and indirect project costs, cost slope	White Board
19	3	Students should be able to write process of crashing of activities	White Board
20	3	Students should be able to write process of crashing of activities	White Board
21	3	Students should be able to compute the optimum duration of project	White Board
22	3	Students should be able to schedule updating of project networks	White Board
23	3	Students should be able to write resource's allocation	White Board
24	4	CONTRACT MANAGEMENT: Students should be able to write element of tender operation	White Board
25	4	Students should be able understand types of tenders	White Board
26	4	Students should be able practice Contract negotiation	White Board
27	4	(Cont.) Students should be able practice Contract negotiation	White Board
28	4	Students should be able practice Contract negotiation	White Board
29	4	Students should be able understand breach of contracts	White Board
30	4	Students should be able analyze the Contracts	White Board
31	4	Students should be able analyze Arbitration	White Board
32	5	Safety and other aspects of construction management: Students should be able to identify causes and preservation of accidents at construction sites	White Board
33	5	Students should be able understand the safety management	White Board
34	5	Students should be able identify demolition of structures	White Board
35	5	Students should be able understand explosive handling	White Board
36	5	Students should be able identify hot bitumen works	White Board
37	5	Students should be able understand project management information System: Concept, frame work	White Board
38	5	Students should be able identify benefits of computerized information systems	White Board
39	5	Students should be able understand environmental aspect of various types of construction projects	White Board

# Techno India NJR Institute of Technology

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40	5	Students should be able understand social aspect of various types of construction projects	White Board
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**Signature of Faculty:**

**Signature of HOD**

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## Assignment – 1

1. A construction company is considering a capital investment project that requires an initial investment of \$500,000. The estimated cash inflows for the next five years are as follows: Year 1 - \$120,000, Year 2 - \$150,000, Year 3 - \$180,000, Year 4 - \$200,000, Year 5 - \$220,000. Assuming a discount rate of 10%, calculate the Net Present Value (NPV) of the project. Based on the NPV criterion, should the company proceed with the project? Why or why not?
2. Explain the difference between CPM (Critical Path Method) and PERT (Program Evaluation and Review Technique) in project scheduling. Provide a scenario where each technique would be most appropriate to use and justify your choice.
3. A construction project has a planned duration of 20 weeks with a total direct cost of \$200,000. By reducing the project duration, the direct costs increase as shown in the following table:
  - a. 18 weeks: \$220,000
  - b. 16 weeks: \$250,000
  - c. 14 weeks: \$290,000
  - d. 12 weeks: \$340,000Determine the cost slope for each reduction step and identify the optimum project duration for minimizing total project costs.
4. Describe the legal aspects that must be considered when drafting a construction contract. Discuss the importance of clearly defining contract terms and conditions to avoid disputes and explain the role of arbitration in resolving contractual disagreements.
5. Identify three key safety measures that must be implemented during the demolition of structures. Discuss how a Project Management Information System (PMIS) can assist in managing safety protocols and ensure compliance with environmental and social aspects in construction projects.

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## Assignment – 2

1. A construction firm needs to evaluate the feasibility of a project with an initial investment of \$400,000 and the following expected cash inflows: Year 1 - \$100,000, Year 2 - \$140,000, Year 3 - \$160,000, Year 4 - \$180,000, and Year 5 - \$200,000. Calculate the Benefit-Cost Ratio (BCR) using a discount rate of 8%. Determine whether the project is financially viable based on the BCR value.
2. Outline the steps involved in developing a project plan for a construction project. Highlight the importance of each step and explain how effective project planning can contribute to reducing the risk of project failure.
3. Discuss the process of developing a Work Breakdown Structure (WBS) for a construction project. How does WBS help in project scheduling and resource allocation? Provide an example of a simple WBS for the construction of a residential building.
4. A project manager is facing delays in a construction project. To expedite the work, they decide to crash certain activities. Explain the process of crashing in project management, including the concept of cost slope. How does a project manager determine which activities to crash to minimize the overall project cost?
5. Safety is a crucial aspect of any construction project. List and describe the safety precautions that should be taken while handling explosives and hot bitumen work on a construction site. Additionally, explain how an effective safety management plan can impact the overall success of a construction project.



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## SAMPLE QUIZ QUESTIONS

1. Which of the following is NOT a criterion for evaluating the financial viability of a construction project?

- A) Net Present Value (NPV)
- B) Internal Rate of Return (IRR)
- C) Projected Inflation Rate
- D) Benefit-Cost Ratio (BCR)

Answer: C) Projected Inflation Rate

2. In project scheduling, what does CPM stand for?

- A) Construction Project Management
- B) Critical Path Method
- C) Cost Planning Mechanism
- D) Comprehensive Planning Model

Answer: B) Critical Path Method

3. Which type of tendering process allows only selected contractors to submit their bids?

- A) Open Tendering
- B) Selective Tendering
- C) Negotiated Tendering
- D) Competitive Tendering

Answer: B) Selective Tendering

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4. What is the primary purpose of a Work Breakdown Structure (WBS) in project management?

- A) To define the legal aspects of a project
- B) To determine the cash flow of a project
- C) To break down the project into manageable tasks
- D) To assess the environmental impact of a project

Answer: C) To break down the project into manageable tasks

5. If the cost slope of an activity is \$500 per day, what does this mean in the context of time-cost trade-off?

- A) It costs \$500 to extend the project by a day.
- B) Crashing the activity will save \$500 per day.
- C) Reducing the duration of the activity by one day increases the cost by \$500.
- D) The cost of labor is \$500 per day.

Answer: C) Reducing the duration of the activity by one day increases the cost by \$500.

6. Which of the following is considered a direct cost in a construction project?

- A) Overhead expenses
- B) Equipment rental
- C) Indirect taxes
- D) Office administration

Answer: B) Equipment rental

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7. Which legal document outlines the terms and conditions between the client and contractor in a construction project?

- A) Work Breakdown Structure (WBS)
- B) Project Management Plan (PMP)
- C) Contract Document
- D) Safety Management Plan

Answer: C) Contract Document

8. In PERT analysis, the duration of each activity is estimated using which of the following time estimates?

- A) Most Likely Time, Optimistic Time, Pessimistic Time
- B) Earliest Start, Latest Start, Slack Time
- C) Duration Time, Float Time, Lead Time
- D) Work Time, Rest Time, Idle Time

Answer: A) Most Likely Time, Optimistic Time, Pessimistic Time

9. Which safety measure is crucial when performing excavation work on a construction site?

- A) Using fire extinguishers
- B) Providing proper ventilation
- C) Implementing slope protection or shoring
- D) Wearing hearing protection

Answer: C) Implementing slope protection or shoring

# **Techno India NJR Institute of Technology**

(Approved by AICTE, New Delhi and Affiliated to Rajasthan Technical University Kota (Raj.))

10. What is the primary benefit of using a Project Management Information System (PMIS)?

- A) Reducing the environmental impact of a project
- B) Automating the physical construction process
- C) Enhancing communication and data management
- D) Eliminating the need for project scheduling

Answer: C) Enhancing communication and data management

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## Mid Term 1

TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR DEPARTMENT OF  
CIVIL ENGINEERING

VIII SEM MID TERM EXAM 2024

SUBJECT: Project Planning & Construction Management [8CE4-01]

TIME: 2 HRS

MM: 70

1. Explain the concept of Work Breakdown structure in the development of a project network.
2. Explain direct and indirect cost associated with project cost with the help of. graph showing their variation with time.
3. Differentiate between the following :
  - Activities On Arrows (AOA) and Activities On Nodes (AON) network diagrams.
  - CPM and PERT Techniques.
4. Write down the rules for inviting and processing tenders and note down the legal aspects of the contract.
5. Discuss steps in Resources allocation. Differentiate between Resources smoothing and Resources leveling.

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## Marks and Gap Analysis of Mid-Term I

S.No.	University Roll No.	Name of Student	Mid-Term 1 MM-70	Remark ( Remedial Class need or not – Y/N )
1.	20ETCCE001	Avinash Ahari	61	N
2.	20ETCCE002	Ayushi Choubisa	56	N
3.	20ETCCE004	Kamal Singh Rao	58	N
4.	20ETCCE005	Kritika Dodia	56	N
5.	20ETCCE006	Pradeep Sharma	52	N
6.	20ETCCE009	Rudraksh Pacholi	54	N
7.	20ETCCE010	Shailesh Meghwal	54	N
8.	20ETCCE011	Suryabhan Singh Sarangdevot	65	N
9.	20ETCCE012	Vinit Mali	52	N
10.	20ETCCE300	Shailesh Mali	50	N

(Y, if obtained marks are <50%)

**Signature of Faculty:**

**Signature of HOD**

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## Remedial Action Taken to Remove the Gaps (After Mid-Term 1)

S.no.	University Roll no.	Name of Student	Topics to be discussed in Remedial Class	Schedule Date of Remedial Class	Outcome Achieved
1.	NIL				
2.					

**Signature of Faculty:**

**Signature of HOD**

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## **Mid Term Paper-II**

### **TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR DEPARTMENT OF CIVIL ENGINEERING**

VIII SEM MID TERM EXAM 2024

SUBJECT: Project Planning & Construction Management [8CE4-01]

TIME: 2 HRS

MM:70

1. Explain the concept of Work Breakdown structure in the development of a project network.
2. Explain direct and indirect cost associated with project cost with the help of. graph showing their variation with time.
3. Differentiate between the following :
  - A. Activities On Arrows (AOA) and Activities On Nodes (AON) network diagrams.
  - B. CPM and PERT Techniques.
4. Write down the rules for inviting and processing tenders and note down the legal aspects of the contract.
5. Discuss steps in Resources allocation. Differentiate between Resources smoothing and Resources leveling.



## Marks and Gap Analysis of Mid-Term II

S.No.	University Roll No.	Name of Student	Mid-Term 1 MM-70	Remark ( Remedial Class need or not – Y/N )
1.	20ETCCE001	Avinash Ahari	60	N
2.	20ETCCE002	Ayushi Choubisa	55	N
3.	20ETCCE004	Kamal Singh Rao	57	N
4.	20ETCCE005	Kritika Dodia	55	N
5.	20ETCCE006	Pradeep Sharma	51	N
6.	20ETCCE009	Rudraksh Pacholi	53	N
7.	20ETCCE010	Shailesh Meghwal	53	N
8.	20ETCCE011	Suryabhan Singh Sarangdevot	64	N
9.	20ETCCE012	Vinit Mali	51	N
10.	20ETCCE300	Shailesh Mali	49	N

(Y, if obtained marks are <50%)

**Signature of Faculty:**

**Signature of HOD**

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## Remedial Action Taken to Remove the Gaps (After Mid- Term 1I)

S.no.	University Roll no.	Name of Student	Topics to be discussed in Remedial Class	Schedule Date of Remedial Class	Outcome Achieved
1.	NIL				
2.					

**Signature of Faculty:**

**Signature of HOD**

**Model Question Paper**

**PREVIOUS YEAR QUESTION PAPERS:**

<b>8E 8093</b>	Roll No. _____	[Total No. of Pages : 3]
	<b>8E 8093</b>	
<b>B.Tech. VIII - Semester (Main &amp; Back) Examination, April-2019</b> <b>Civil Engineering</b> <b>8CE3A Project Planning &amp; Construction Management</b>		

Time : 3 Hours

Maximum Marks : 80  
Min. Passing Marks : 26

**Instructions to Candidates:**

*Attempt any Five questions, selecting One question from each unit. All Questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.) Units of quantities used/calculated must be stated clearly.*

**Unit - I ✓**

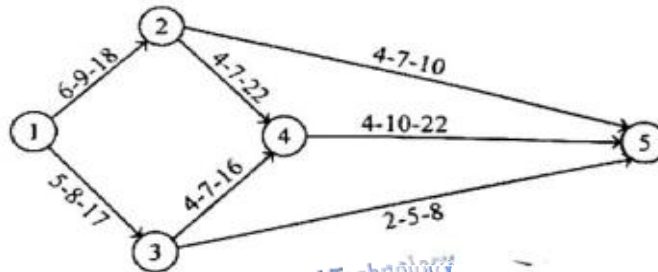
1. a) Discuss the techniques of decision making under risk and uncertainty. (8)
- b) Discuss the functions of Project Manager in construction project. (8)

**(OR)**

1. a) Write down the importance of project planning and enlist the stages involved in the project planning. (8)
- b) Explain different phases associated with project life cycle. (8)

**Unit - II ✓**

2. For the network shown in the figure below, the time estimates for each activity are mentioned. (16)



- a) Find EST, EFT, LST, LFT for each activity.
- b) Determine the probability of completing the project in 35 days.

# Techno India NJR Institute of Technology

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(OR)

2. a) Explain Gantt chart and write down the limitations of it, compare it with the Milestone chart. (8)
- b) Explain programme Evaluation and Review Technique and distinguish between positive slack, zero slack and negative slack. (8)

Unit - III

3. a) Explain resource updating and discuss how this process is implemented. (8)
- b) Write down the differences between Resource levelling and Resource smoothing. <http://www.rtuonline.com> (8)

(OR)

3. A project has the following activities, duration, cost and precedence relationships.

Activity	Immediate Predecessor Activity	Normal Time (weeks)	Normal cost (Rs.)	Crast Time (weeks)	Crash cost (Rs.)
A	-	10	11,000	9	15,000
B	-	15	20,000	13	25,000
C	A	10	9,000	6	20,000
D	A	20	25,000	18	30,000
E	C	15	20,000	10	35,000
F	B	17	20,000	15	30,000
G	F	12	15,000	10	25,000
H	D, F	9	12,000	8	18,000
I	G, H	7	10,000	6	15,000

- a) Determine the critical path and the duration of completion of project.
- b) Crash the project to its minimum duration at the lowest cost. (16)

Unit - IV ✓

4. a) Write down the rules for inviting and processing tenders and note down the documents required. (12)
- b) Explain project cost in details. (4)

(OR)

4. a) Discuss the different criteria by which a contract can be terminated. (8)

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पंजी

1/1/2020

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## Unit - V

5. a) Explain the safety measures to be followed while handling explosive. (8)
- b) Discuss the social aspects of construction management. (8)

(OR)

5. a) Mention the safety measures for scaffoldings, Ladder framework. (8)
- b) Explain different features of Integrated Project Management Information system. (8)

For Techno India NJR Institute of Technology

पंकज कुमार पोखराण

http://www.tinonline.com  
(Principal)

## STUDENT PERFORMANCE REPORT

Roll No.	Name of Student	I Mid-Term	II Mid-Term	Average
20ETCCE001	Avinash Ahari	61	60	60.5
20ETCCE002	Ayushi Choubisa	56	55	55.5
20ETCCE004	Kamal Singh Rao	58	57	57.5
20ETCCE005	Kritika Dodia	56	55	55.5
20ETCCE006	Pradeep Sharma	52	51	51.5
20ETCCE009	Rudraksh Pacholi	54	53	53.5
20ETCCE010	Shailesh Meghwal	54	53	53.5
20ETCCE011	Suryabhan Singh Sarangdevot	65	64	64.5
20ETCCE012	Vinit Mali	52	51	51.5
20ETCCE300	Shailesh Mali	50	49	49.5

**Signature of Faculty:**

**Signature of HOD**

## RESULT ANALYSIS

S.NO	RTU ROLL NUMBER	NAME OF STUDENT	END TERM MARKS	SESSIONAL MARKS	TOTAL
		MAX MARKS	70	30	100
1.	20ETCCE001	Avinash Ahari	48	27	75
2.	20ETCCE002	Ayushi Choubisa	35	25	60
3.	20ETCCE004	Kamal Singh Rao	32	26	58
4.	20ETCCE005	Kritika Dodia	52	25	77
5.	20ETCCE006	Pradeep Sharma	33	23	56
6.	20ETCCE009	Rudraksh Pacholi	27	24	51
7.	20ETCCE010	Shailesh Meghwal	44	24	68
8.	20ETCCE011	Suryabhan Singh Sarangdevot	54	29	83
9.	20ETCCE012	Vinit Mali	11	23	34
10.	20ETCCE300	Shailesh Mali	22	22	44

TOTAL	PASS	FAIL	ABSENT	PASS %
10	9	1	0	90%

# **Techno India NJR Institute of Technology**

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## **Indirect Assessment:**

**Overall Teacher Self-Assessment (at the completion of course) in terms of course objective and outcomes**

## **Course Objectives:**

The objective of this course is to equip students with the knowledge and skills required for effective project management in construction. This includes understanding the financial evaluation of projects, project planning and scheduling techniques, cost and time control methods, contract management, and safety protocols. Students will also learn the essential elements of project management, including risk assessment, project organization, legal aspects of contracts, and the application of modern tools such as Project Management Information Systems to ensure efficient and sustainable project execution.

## **Course Outcomes:**

At the end of this course students will be able to:

CO1: Students will be able to understand construction risk management, the roles and responsibilities of all constituencies involved in the design and construction process.

CO2: Students will be able to design a network diagram to create the project schedules, Critical path, slack in between activities using CPM & PERT techniques.

CO3: Students will be able to design a network diagram to create the project schedules, Critical path, slack in between activities using CPM & PERT techniques

CO4: Students will be able to Identify the project cost and time control using network techniques.

CO5: Students be able to Analyze about the contract management.



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## **Methodology to identify bright student**

It is done by considering a range of criteria, including academic performance, creativity, critical thinking, problem-solving skills, and enthusiasm for learning. Bright students often excel in multiple areas. Observed how students perform in the classroom. In terms of active participation, engagement in discussions, leadership, and the ability to grasp complex concepts.

## **Efforts to keep students engaged**

1. **Active Learning:** Incorporate active learning strategies, such as group discussions, problem-solving activities, and hands-on projects. Active participation keeps students engaged and encourages critical thinking.
2. **Varied Teaching Methods:** Use a variety of teaching methods, including lectures, group work, multimedia presentations, and interactive activities to cater to different learning preferences.
3. **Technology Integration:** Leverage technology, such as online platforms, educational apps, and interactive software, to make lessons more engaging and interactive.

## **Methodology to identify weak student**

It is done by considering a range of criteria, including classroom observation, formative assessment, summative assessment, assignment review etc. Weak students are struggling students with sensitivity and a desire to support their learning. Some measures, such as additional tutoring, personalized assignments, or alternative assessment methods, to help students succeed.

## **Targeted interventions for weak student**

### **1. Additional Resources**

Offer supplementary learning materials, such as textbooks, online resources, or multimedia content, to provide alternative explanations and reinforce key concepts.

### **2. Remedial classes**

Establish a tutoring program where students can receive extra help from teachers.

### **3. Flipped classroom**

Students are assigned pre-class learning materials, often in the form of videos, readings, or online modules, to cover the foundational concepts before coming to class.