



Course Syllabus
Gyanmanjari Institute of Technology
Semester-2

Subject : Fundamental Principal of Construction Management - METCP12509

Type of course: Major

Prerequisite: NIL

Rationale: The Fundamental Principle of Construction Management is to ensure that projects are completed on time, within budget, and to the specified quality standards. This principle is rooted in effective planning, coordination, and control of a project's resources and activities. By emphasizing thorough project planning, accurate cost estimation, and diligent schedule management, construction managers can mitigate risks and avoid delays. Effective communication among stakeholders is crucial to address issues promptly and maintain project alignment. Additionally, adhering to safety regulations and environmental standards ensures sustainable and ethical practices. Ultimately, this principle aims to deliver a project that meets client expectations, enhances stakeholder satisfaction, and upholds professional integrity in the construction industry.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks					Total Marks
CI	T	P		Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
4	0	2	5	60	30	10	20	30	150

Legends: CI-Class Room Instructions; T– Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.



Course Content:

Sr. No	Course content	Hrs	% Weightage
1	<p>Project Management Overview of project Management, Project Failure, What is management?, phase of project, steps in project management, project process, integration, scope, time, cost, quality, human resource, communication, risk, procurement management. Role of manager, definition of management, planning the project, planning definition, implementation planning, project planning steps Developing a mission, vision, goal and objectives of the project Project risk plan: Definition, Six step process, managing multi-project risk,</p>	12	20%
2	<p>Scheduling and planning: Work breakdown structure to plan a project, guideline for developing the WBS, scheduling project work, network diagrams Producing a workable schedule: Schedule computation, converting arrow diagrams to bar charts, assigning resources to task Project control and evaluation: Characteristics of project control system, project evaluation, purpose of project evaluation, project review process report. Change control process: Source of change, six steps in the change control process, the change control form, control log Project control: measuring progress, project performance/Quality, Earn value analysis, responding variance, Example.</p>	13	20%
3	<p>Project Management Team: Team building, team mission, goals, and objective, Leading team through the stages, project manager as leader, understanding leadership characteristics, style, project constituents, project leadership and team environment, project management work in company.</p>	5	10%
4	<p>Construction Management-1: Introduction, interdisciplinary nature of modern construction projects, steps in execution of project, example of evaluation of bids based on different scheme, resource management Estimation of project cost: Estimating quantity, Estimating project cost. Construction economic: case study, economic decision making, depreciation of construction equipment Planning and scheduling: Introduction, project scheduling,</p>	15	25%



	uncertainties in duration of activities-using PERT, Project monitoring and control system		
5	Construction safety, Quality management and legal aspect: Accident in construction Industry, Personal protective equipment, implication of construction accident, Quality management: quality control in construction, welding, epoxy coated bars, grouts in ducts of post tensioned PC members quality control issue in concrete, quality control in concrete sewer pipeline. Legal aspect: legal issue in construction management, essential of good contract, dispute resolution, types of construction contract, closing discussion on legal aspects	15	25%
Total		60	100

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Prepare the WBS Faculty will give the any infrastructure related project (i.e. National Highway, Bridge Construction, etc.) Student will prepare the WBS in detail and upload on GMIU Web Portal.	10
2	Prepare the Economic Study Faculty will assign the individually one existing structure to study. Student will prepare the detail Economic study and give their conclusion. Upload on GMIU Web Portal.	10
3	Legal Aspect Faculty will assign the individually one legal issue to student. Student will prepare the solution of the given legal issue with their closing conclusion.	10
Total		30

Suggested Specification table with Marks (Theory):60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	NA	NA	NA	NA	NA	NA

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.



Course Outcome:

After learning the course, the students should be able to:	
CO1	Gain a understanding of the fundamental principles and concepts of construction management, including project planning, scheduling, budgeting, and resource management.
CO2	Learn how to estimate construction costs accurately and develop project budgets considering various factors such as materials, labor, equipment, and overhead expenses.
CO3	Understand the importance of identifying, assessing, and mitigating risks in construction projects and learn techniques to manage risks effectively to ensure project success.
CO4	Develop effective communication and interpersonal skills necessary for managing construction teams, subcontractors, suppliers, and other stakeholders involved in construction projects.
CO5	Learn about quality assurance and quality control processes in construction projects to ensure that projects meet specified standards and requirements.
CO6	Gain knowledge of relevant laws, regulations, and codes governing the construction industry and understand their implications for project management.

List of Assignment

Assignment and tutorial based on above mention topics.

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Text Books:

1. Fundamental of Project Management by Joseph Heagney, Fourth Edition

Reference Books:

1. Principal of Construction Management, NPTEL online course

