

Department of Civil Engineering

Program: M.Tech- Construction Technology & Management

Academic Year 2023-24

Course Code	Course Title	No. of Co	Description of the Course Outcome
23CE512 1	Construction Planning Scheduling and Control	Co1	Understand the concepts of project management for practical application
		Co2	Apply mathematical logic in the planning and scheduling of a project
		Co3	Apply concepts to estimate the project cost by using tools
		Co4	Apply concepts to maintain the construction documents in the project
		Co5	Plan, schedule, and control large-scale programs and individual projects by using Primavera/MS Project Tool
23CE512 3	Sustainable Construction Materials and Methods	Co1	Understand concepts of sustainable construction practices
		Co2	Understand basics of sustainable construction materials
		Co3	Design the product's process to achieve sustainability features
		Co4	Calculate Life Cycle Assessment of building
		Co5	Investigate Sustainability aspects of the buildings by using LCA tools
23CE512 3	Lean Construction Practices	Co1	Understand the elements of traditional construction management
		Co2	Understand the integrated applications of various IT tools and case studies
		Co3	Apply and analyse construction productivity

			measuring and improving techniques
		Co4	Implement lean principles in order to improve the customer value for sustainable project business
		Co5	Apply and analyse the lean practices
23CE512 4	Building Information Modelling	Co1	Become familiar with the trends, concepts of Building Information Modeling
		Co2	Learn about Project BIM Execution Planning
		Co3	Design the BIM execution process by creating process maps
		Co4	Develop BIM information exchanges
		Co5	Developing BIM Model using Revit Software and submission of project report
23CE523 5	Mechanized Construction and Machinery	Co1	Understanding the basic concepts of Equipment Management and tools
		Co2	Understand various construction equipment and study the efficient utilization of the same using scientific principles
		Co3	Apply the knowledge for the selection of appropriate equipment
		Co4	Understand the operation of Earthwork and various functions of machinery used for Earth moving, compaction, etc.
		Co5	Write field report on machinery operation, cost and productivity by using project management tools like Primavera/Candy/SAP etc
23CE523 6	Project Formulation Appraisal	Co1	Understand the concept of project and Identification of best Project by understanding the different feasibility studies
		Co2	Estimating the cash flows by considering the time value of money.
		Co3	Identify the best project by analyzing facts related economic, commercial and financial aspects.

		Co4	Understand in detail about Private sector partnership in construction projects.
23CE523 7	Construction Laws and Regulations	Co1	Understand the concept of construction laws and regulations.
		Co2	Study the current trend toward alternative project delivery systems via contractual arrangements such as design-build and construction management at risk
		Co3	Investigate how to avoid the possibilities of construction disputes via alternative dispute resolution (ADR)
		Co4	Understand the Labor regulations and review construction contracts and specifications
23CE523 8	Quality Management and Safety Management Systems in Construction	Co1	Understand the concepts of quality management and the factors influencing construction quality
		Co2	Understand quality planning and programs in construction industry
		Co3	Acquire knowledge of quality management systems and ISO 9000 family of standards.
		Co4	Understand and analyses quality circle (QC) concepts for possible implementation to solve construction productivity and quality problems
		Co5	Understand and evaluate safety management principles in construction
23CE51E 1	Material Procurement Management	Co1	Understand the significance of material management
		Co2	Integrate important materials functions to both products and services & use MRP, ERP,& PLM managing materials
		Co3	Apply various purchasing method and inventory controlling techniques into practice.
		Co4	Use the Material Management tools like TALLY, ERP, SAP in materials planning, procurement, inventory, control, cost control etc.
23CE51E	Green	Co1	Understand Necessity and importance of

2	Buildings		Sustainable/ Green Buildings, Grasp the construction practices of a sustainable Buildings.
		Co2	
		Co3	Understanding the Green Building Rating Systems, Water & Energy efficiencies, Reduction in waste material during construction and Building Design
		Co4	Understanding Air Conditioning and HVAC system design, Salient features of CII Godrej Green Business Center
23CE51E 3	Sustainable Engineering Concepts and Life Cycle Analysis	Co1	Understanding Indoor Environment Quality and Occupational Health, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,
		Co3	This course will introduce students to the fundamental concepts related to interaction of industrial and environmental/ecological systems, sustainability challenges facing the current generation
		Co4	. Students will understand the concepts and the scientific method as it applies to a systems-based, trans-disciplinary approach to sustainability
23CE51F 1	Construction Personnel Management	Co1	identify problems in sustainability and formulate appropriate solutions based on scientific research, applied science, social and economic issues
		Co2	The basic concepts of life cycle assessment (LCA) will be discussed, along with life cycle inventory (LCI) and life cycle impact assessment (LCIA) including the social and economic dimensions
		Co3	Understand Overview of manpower planning and roles of HR Understand Detail about the organizations and structure variance for organizations Understand human relations and organizational behavior for working in an organization

		Co4	Understand welfare measures and laws related to welfare measures and Detail overview of management and development methods
		Co5	Understand the type of prefabricated elements and its importance
23CE52G 1	Statistical Methods in Construction	Co1	Understand the precast construction procedure
		Co2	Understand the modular construction practices and its limitations and advantages
		Co3	Apply knowledge in the choice of production setup and manufacturing methods
		Co4	Apply discrete and continuous probability distribution including requirements mean and variance and making decisions
23CE52G 2	Project Risk Management	Co1	Use the concepts of standard deviation, coefficient variance in different types samples and apply the tests
		Co2	Perform the correlation analysis in various civil engineering projects
		Co3	Apply simulation techniques for analysis and mitigation of construction project risks
		Co4	Identify the stages involved in a project and analyze the obligatory services to be taken up while performing a construction activity
23CE52H 1	Emerging Construction Technologies	Co1	Cultivate an idea on effective resource utilization and identify factors affecting job productivity
		Co2	Apply the professional skills acquired in managing a construction project.
		Co3	Gain the ability to attain an equilibrium among Innovation, Technology and Economic feasibility
		Co4	Understand the modern construction techniques used in the sub structure construction
23CE52H 2	Resource Management	Co1	Understand the concepts used in the construction of special structures

	and Control in Construction	Co2	Apply mechanism/technique for strengthening and repair methods for different cases.
		Co3	Demonstrate knowledge and understanding of the principles and concepts relevant to super structure construction for buildings
		Co4	Understand overview of the resource planning and management of resources in construction
23CE51F 3	INFRASTRUCTURE PLANNING AND MANAGEMENTS	Co1	Understand in detail about the labor management and optimization
		Co2	Understand equipment management and effective utilization of the material resources
		Co3	Understand detail about the allocation and levelling of resources with time management
		Co4	This course attempts to introduce students to real world risks and challenges in managing infrastructure
23CE51G 3	CHARACTERIZATION OF CONSTRUCTION MATERIALS	Co1	After a brief introduction to the infrastructure planning process as well as the state of infrastructure across sectors in India, we systematically look at various risks that plague infrastructure projects
		Co2	We then look at a variety of novel solutions or fixes that can help us execute infrastructure projects better
		Co3	The course is replete with real-world case studies and guest lectures to ensure that what is being discussed is practically applicable
		Co4	The objective of the course is to introduce students to the characterization of construction materials and their behaviour.
23CE51H 3	PRINCIPLES OF CONSTRUCTION MANAGEMENT	Co1	understanding of the mechanisms that govern the performance of these materials
		Co2	The course will be focused primarily on cement and concrete, and include a few techniques.
		Co3	The physics of the techniques and their application to cement science. Lab demonstrations and experiments will be

			covered
		Co4	Though the course primarily targets students of civil engineering in colleges, other engineering students may also find it interesting.