

- **Department Name :- Department of Civil Engineering**
- **PG Program Name: M Tech Construction Management**
- **Vision and Mission :-**

Department Vision:

To be an outstanding department devoted to provide high end research, technical education in Civil engineering which will produce socially aware professionals to provide solutions to global community.

Department Mission:

- To design curriculum based on changing needs of stakeholders & provide excellence in delivery & assessment to ensure holistic development of civil engineering students.
- To enhance research & consultancy resulting in solving problems related to civil engineering infrastructure as well as society at large.
- To mentor students in pursuit of higher education, entrepreneurship and global professionalism.

Sr. No.	Program Outcomes
1.	An ability to independently carry out research /investigation and development work to solve practical problems.
2.	An ability to write and present a substantial technical report/document.
3.	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
4.	An ability to Analyze, evaluate, and select computer applications for the purpose of efficient and effective construction project management.
5.	An ability to Analyze construction projects relative to fundamental aspects of construction management (i.e., cost, schedule, quality, safety, ethics) and develop appropriate solutions
6.	Apply ethical business principles and Demonstrate responsibility for safety planning and productivity in construction management settings.

Sr. No.	Program Specific Outcomes
1.	Enhance employability and/or entrepreneur skills through in-house and onsite training.
2.	Provide solutions/procedures to societal and rural development problems through research and innovative practices.

Sr. No.	Semester	Course Code	Course Name	Course Outcome
1.	I	CCM1014	Construction Project Management	<ol style="list-style-type: none"> 1. Implement project management framework. 2. Develop time schedules for projects. 3. Identify and control project cost, quality, human resources and communications. 4. Apply project management information system for construction projects.
2.	I	CCM1024	Construction Equipment & Techniques	<ol style="list-style-type: none"> 1. Compute productivity of various earthmoving equipment. 2. Analyze economics of project execution. 3. Select optimum equipment for construction of particular task. 4. Develop method statement for construction task. 5. Select equipment based on method statement
3.	I	CCM1034	Ground Improvement Techniques	<ol style="list-style-type: none"> 1. Apply principles of ground improvement techniques. 2. Assess the most appropriate ground improvement techniques in specific circumstances. 3. Carry out laboratory and in situ tests for soil improvement. 4. Justify the applications of soil improvement methods on projects.
4.	I	CCM1041	Operations Research	<ol style="list-style-type: none"> 1. Formulate and analyze the managerial problem through or models and arrive at an optimal solution or decision 2. Select appropriate method for decision making. 3. Apply nonlinear programming for managerial problems.
5.	I	CCM1054	Resource Management	<ol style="list-style-type: none"> 1. Develop codes for material classification, 2. Select vendor for material procurement, 3. Apply inventory control models for materials management. 4. Describe employee development and welfare, 5. Develop performance appraisal matrix.

Sr. No.	Semester	Course Code	Course Name	Course Outcome
6.	I	CCM1064	Total Quality Management	<ol style="list-style-type: none"> 1. Derive strategic plan for TQM. 2. Develop framework for TQM. 3. Apply quality management systems. 4. Examine suitable systems for TQM.
7.	I	CCM1074	Bridge Construction	<ol style="list-style-type: none"> 1. Select location for bridge through geotechnical investigation data. 2. Perform hydrological calculations of design parameters. 3. Apply standard loadings and safety consideration for bridge design. 4. Select appropriate bridge superstructure elements for bridges.
8.	I	CCM1084	Construction Materials	<ol style="list-style-type: none"> 1. Justify the need of new material development. 2. Choose material for construction process based on material properties.
9.	I	CCM1094	Project Formulation & Appraisal	<ol style="list-style-type: none"> 1. Perform technical and financial analysis of construction projects, 2. Perform BC ratio analysis, 3. Select project based on appraisal, 4. Develop administration process for project execution.
10.	I	CCM1104	Construction Waste Management	<ol style="list-style-type: none"> 1. Develop strategies for construction and demolition waste management and resource efficiency. 2. Examine the environmental impact of building materials. 3. Design site waste management plans. 4. Justify the application of waste minimization techniques on construction site.
11.	I	CCM1114	Research Methodology & IPR	<ol style="list-style-type: none"> 1. Prepare abstract through literature review. 2. Formulate a research problem. 3. Prepare and present research proposal/paper by following research ethics. 4. Prepare and present a report on Intellectual Property Rights.
12.	I	SHP551	Technical Communication	<ol style="list-style-type: none"> 1. Acquire skills required for effective oral and written communication. 2. Demonstrate improved writing and reading skills.
13.	I	CCM1124	Quantity Surveying Lab	<ol style="list-style-type: none"> 1. Develop drawings as per software requirement 2. Compute quantities of building items using software. 3. Prepare abstract sheet from the estimated quantities.

Sr. No.	Semester	Course Code	Course Name	Course Outcome
14.	I	CCM1134	Project Planning Lab I	<ol style="list-style-type: none"> 1. Develop Work Breakdown Structure for project. 2. Prepare project schedule using Microsoft project. 3. Modify construction schedule based on site progress. 4. Extract and present various types of reports.
15.	II	SHP526	Numerical Computational Method	<ol style="list-style-type: none"> 1. Use various statistical notions to model the problems. 2. Use relevant probability distribution to various problems. 3. Apply sampling and testing methods to distribute the given data. 4. Solve problems on correlation and regression.
16.	II	CCM2014	Project Economics & Financial Management	<ol style="list-style-type: none"> 1. Select the best project of different alternatives. 2. Analyze projects using different techniques. 3. Identify and suggest sources of finance. 4. Analyze different financial statement. 5. Prepare and maintain different site accounts for civil engineering projects
17.	II	CCM2024	Construction Contracts	<ol style="list-style-type: none"> 1. Identify applications of contract types for construction projects. 2. Develop tender document for construction project. 3. Perform comparative analysis of types of contract. 4. Analyze arbitration documents for construction project.
18.	II	CCM2034	Special Construction Methods	<ol style="list-style-type: none"> 1. Select proper technique and equipment for a project, 2. Decide type of pile foundation for a project, 3. Plan site investigation.
19.	II	CCM2044	Health & Safety Management	<ol style="list-style-type: none"> 1. Classify hazards to employees on construction site 2. Determine safe practices necessary for a project site 3. Identify the causes of accidents and suggest preventive measures to avoid accident. 4. Prepare safety management plan.

Sr. No.	Semester	Course Code	Course Name	Course Outcome
20.	II	CCM2054	Lean Construction	<ol style="list-style-type: none"> 1. Compare lean and conventional production management. 2. Develop framework for lean construction application. 3. Apply lean construction techniques to construction projects. 4. Analyze and present case studies.
21.	II	CCM2074	Value Engineering	<ol style="list-style-type: none"> 1. Perform value analysis, 2. Develop life cycle process of a project, 3. Apply Value Engineering methods, 4. Perform valuation of an asset.
22.	II	CCM2084	Building Maintenance	<ol style="list-style-type: none"> 1. Investigate design factors influencing services selection, 2. Select sustainable building services for a project. 3. Develop process for testing and commissioning of building service system. 4. Analyze impact of various parameters on Life Cycle Cost of project.
23.	II	CCM2094	Project Planning Lab II	<ol style="list-style-type: none"> 1. Prepare schedule plan for construction project. 2. Develop residential building construction project in primavera software 3. Analyze construction project using primavera. 4. Prepare and present various types of reports.
24.	II	CCM2104	Geographic Information System Laboratory	<ol style="list-style-type: none"> 1. Justify the application of GIS in construction industry. 2. Analyze data using GIS software. 3. Prepare and present maps in GIS.
25.	II	CCM2114	Industry Internship	<ol style="list-style-type: none"> 1. Relate theory to practice. 2. Compile technical data of the project. 3. Prepare daily work reports of ongoing activities. 4. Prepare and present internship report.
26.	II	CCM2124	Miniproject	<ol style="list-style-type: none"> 1. Select mini project problem. 2. Prepare and present statement of purpose. 3. Develop solution to the selected problem. 4. Prepare and present report.
27.	III	CCM3022	MOOC	<ol style="list-style-type: none"> 1. Apply techniques / processes / tools learned through MOOC in appropriate situation.
28.	III	CCM 3012	Industrial Training	<ol style="list-style-type: none"> 1. Identify training area. 2. Prepare on site work report of training. 3. Perform analysis work. 4. Communicate with agencies. Generate report and Present the work carried out

Sr. No.	Semester	Course Code	Course Name	Course Outcome
29.	III	CCM3042	Dissertation Phase-I	<ol style="list-style-type: none"> 1. Identify research problem through literature survey. 2. Develop research design for research problem. 3. Prepare and present synopsis report.
30.	III	CCM3052	Dissertation Phase-II	<ol style="list-style-type: none"> 1. Perform data/experimental data collection for the project. 2. Analyze collected data using appropriate tools/techniques/ software's. 3. Perform experimental/software analysis for validation of research work. 4. Prepare and present report.
31.	IV	CCM4012	Dissertation Phase-III	<ol style="list-style-type: none"> 1. Analyze collected data using appropriate tools/techniques/ software's. 2. Prepare and present/publish technical paper. 3. Prepare and present report.
32.	IV	CCM4022	Dissertation Phase-IV	<ol style="list-style-type: none"> 1. Compile the work done in appropriate sequence. 2. Derive conclusion of the work done of the project. 3. Analyze proposed system. 4. Perform plagiarism analysis of compiled report. 5. Prepare and present the final dissertation report in desired format.