

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI



Scheme of Teaching and Examinations
M.Tech., in Civil Engineering
Specialization in Infrastructure Engineering and Management (MCEM)
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)-2024
II SEMESTER

Specialization in -(CEM)											
II SEMESTER											
Sl. No	Course	Course Code	Course Title	Teaching Hours /Week			Examination				C r
				Theory	Practical/ Seminar	Tutorial/ Skill Development Activities	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	P	T/SDA					
1	PCC	MCEM201	Maintenance and rehabilitation of Infrastructures	02	00	02	03	50	50	100	3
2	PCC	MCEM202/MCHT202	Highway Construction Technology	02	00	02	03	50	50	100	3
2	IPCC	MCEM203	Construction Project Management	02	02	00	03	50	50	100	4
3	PCC	MCEM204	Advanced Concrete Technology	02	00	02	03	50	50	100	3
4	PEC	MCEM215X	Professional Elective -1	02	00	02	03	50	50	100	3
5	PEC	MCEM216X	Professional Elective-2	02	00	02	03	50	50	100	3
6	PCCL	MCEML207	Construction Material Testing & Evaluation Laboratory	01	02	00	03	50	50	100	2
7	AEC/SEC	MCEM258x	Ability/Skill Enhancement Course (Offline/Online)	00	02	---	02	50	50	100	1
				01	00	----	01				
TOTAL								400	400	800	22
<p>Note: PCC: Professional core. IPCC-Integrated Professional Core Courses, PCC(PB): Professional Core Courses (Project Based), PCCL-Professional Core Course lab, PEC- Professional Elective Courses, MDC- Multi-Disciplinary Courses, L-Lecture, P-Practical, T/SDA-Tutorial / Skill Development Activities (Hours are for Interaction between faculty and students) L-Lecture, P-Practical, T/SDA-Tutorial / Skill Development Activities (Hours are for Interaction between faculty and students) PBLC: Project Based Learning Course, Note: xxx means specialization code for example MDE- Design Engineering, LDN- Digital Communication and Networking, SCE- Computer Engineering, CCT- Construction Technology, AUD- Urban Design, MBA- Master of Business Administration, MCA-Master of Computer Application, etc</p>											
Professional Elective -3						Professional Elective -4					
MCEM215A		Prefabricated Structures				MCEM216A/MCHT216A		Bridge and grade separated structures			
MCEM215B/ MCHT215B		Soil Mechanics				MCEM216B		IoT and Smart Cities			
MCEM215C/MCHT215C		Construction & Demolition Waste management				MCEM216C		Smart Materials and Structures			
MCEM215D/ MCHT215D		Special Concrete				MCEM216D		Energy Conservation techniques in Buildings			

PCC/PCCL/IPCC/PEC/MDC/PCC(PB): These are the courses which will suit the individual specializations

Ability / Skill Enhancement Courses - OFFLINE					
Course Code	Course title	L	T/SDA	P	
MCEM258A/ MCHT258A	Occupational Safety and Health Management in Construction Projects	02	-	-	
MCEM258B/ MCHT258B	Smart City Infrastructure	02	-	-	
MCEM258C/ MCHT258C	Road Safety Engineering & Management	02	-	-	
MCEM258D	Urban Public Transport	02	-	-	
<p>Ability Enhancement Courses (AEC): These courses are designed to help students enhance their skills in communication, language, and personality development. They also promote a deeper understanding of subjects like social sciences and ethics, culture and human behaviour, human rights, and the law.</p> <p>Skill Enhancement Course (SEC): Skill Enhancement Course means a course designed to provide value-based or skill-based knowledge and should contain both theory and lab/hands-on/training/fieldwork. The main purpose of these courses is to provide students with life skills in the hands-on mode to increase their employability.</p> <p>If AEC/SEC courses are ONLINE (MOOCs) courses suggested by the concerned board of studies. These courses will be made available on www.online.vtu.ac.in, however online courses are not considered for vertical progression, but qualifying in online courses is mandatory for the award of the degree.</p>					

Skill and Ability enhancement courses for PG Level Civil Engineering courses - ONLINE

Preamble

The Ability Enhancement and Skill Development Course at the postgraduate level is designed to strengthen students' core competencies and equip them with essential skills for academic and professional advancement. This course focuses on developing critical thinking, academic writing, research methodology, digital literacy, communication, and ethical reasoning to support advanced learning and scholarly engagement. It also emphasizes skill development in areas such as problem-solving, data analysis, entrepreneurship, project management, and the use of discipline-specific tools and technologies. The course adopts an interdisciplinary and experiential learning approach, integrating workshops, case studies, and practical sessions, and encourages collaboration with industry and research organizations. Delivered through blended learning modes, it ensures flexibility and student engagement, with continuous evaluation based on assignments, presentations, and project work. Aligned with the objectives of the National Education Policy (NEP) 2020, the course aims to enhance employability, innovation capacity, and leadership qualities among postgraduate students.

Procedure to take up Skill and Ability enhancement courses for PG Level Civil Engineering courses

Students may opt for subjects from the NPTEL (National Programme on Technology Enhanced Learning) course list and VTU online courses offered during the current semester, subject to the approval of the Department and as per university regulations. The selected course must be relevant to the student's postgraduate program, contribute to academic or professional development, and not duplicate content already covered in the core curriculum. A NPTEL or VTU online course in the semester may be permitted for credit transfer or academic enrichment, provided the course includes assessments such as assignments and proctored examinations. Students must submit their course selection for departmental approval within the first two weeks of the semester. Successful completion of the course, including passing the final certification exam will be required for academic credit or consideration under skill enhancement components.

Some of the Generalized Subjects but not limited for Skill Development Courses (SDC) and Ability Enhancement Courses (AEC)

- Environmental Data Analysis and Simulation Tools
- Disaster Risk Reduction and Management in Infrastructure
- Smart Infrastructure and IoT Applications in Civil Engineering
- Legal Aspects, Contracts, and Arbitration in Construction
- Technical Communication and Scientific Writing for Engineers
- Entrepreneurship and Innovation in Civil Engineering
- Basics of Statistics and Data Analytics for Engineers
- Project Formulation and Proposal Writing
- Digital Literacy and Software Tools for Engineering Research
- Intellectual Property Rights and Patent Drafting
- Leadership and Team Management in Engineering Contexts