VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI

Scheme of Teaching and Examinations

M.Tech., in Civil Engineering

Specialization in Geo-technical Engineering (MCGT)

Choice Based Credit System (CBCS) and Outcome Based Education (OBE) – 2024

II SEMESTER

Specialization in –(CGT)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week			Examination				Credits
				Theory	Practical/ Seminar	Tutorial/ Skill Development Activities	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	P	T/SDA					
1	IPCC	MCGT201	Geo-technology and Advanced Soil Testing	02	02	00	03	50	50	100	4
2	PCC	MCGT202	Design of Shallow Foundations	02	00	02	03	50	50	100	3
2	PCC	MCGT203	Design of Deep Foundations	02	00	02	03	50	50	100	3
3	PCC	MCGT204	Earth Pressure &Earth Retaining Structures	02	00	02	03	50	50	100	3
4	PEC	MCGT215X	Professional Elective -1	02	00	02	03	50	50	100	3
5	PEC	MCGT216X	Professional Elective-2	02	00	02	03	50	50	100	3
6	PCCL	MCGTL207	Advanced Geotechnical Engineering Laboratory	01	02	00	03	50	50	100	2
7	AEC/SEC	MCGT258x	Ability/Skill Enhancement Course (Offline/Online)	00	02	---	02	50	50	100	1
				01	00	----	01				
TOTAL								400	400	800	22

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)

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Note: **CHT** 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

Specialization	Professional Elective-3	Specialization	Professional Elective -4
Course Code	Course Title	Course Code	Course Title
MCGT215A	Advanced Soil Mechanics	MCGT216A	Reinforced Soil Structures
MCGT215B	Ground water hydrology	MCGT216B	Soil structure interaction
MCGT215C	Earthquake Resistant Design of Foundations	MCGT216C	Rock Mechanics
MCGT215D	Foundation Engineering in difficult ground	MCGT216D	Critical state Soil Mechanics

Ability / Skill Enhancement Courses - OFFLINE					
Course Code	Course title	L	T/SDA	P	
MCGT258A	Forensic Geotechnical Engineering	2	0	0	
MCGT258B	Environmental Geotechnical Engineering	2	0	0	
MCGT258C	Occupational safety and health Management in construction projects	2	0	0	
MCGT258D	IoT and Smart Cities	2	0	0	
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. **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. **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.					

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

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