

**DEPARTMENT OF CIVIL ENGINEERING**  
**CO-PO matrices of courses (Theory)**  
**CLASS - T.Y.**  
**ACADEMIC YEAR 2024-25**

Sr. No.	COURSE NAME	COURSE CODE	SEM	COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
1	Design of Steel Structures	BTCVC501	V	Identify and compute the design loads and the stresses developed in the steel member.	2	2				3						2	3	2	
				Analyze and design the various connections and identify the potential failure modes.		3	3			2						3	3	2	
				Analyze and design various tension, compression and flexural members.		3	3			2						3	3	2	
				Understand provisions in relevant BIS Codes.	2			2		3						2	3	2	
2	Geotechnical Engineering	BTCVC502	V	1: Understand different soil properties and behavior.	3	2										1	3	1	
				2: Understand stresses in soil and permeability and seepage aspect	3	3	2	2								1		2	2
				3: Develop ability to take up soil design of various structures.	3	3	3	2	2	1	2			1	1	2	1	3	
3	Structural Mechanics-II	BTCVC503	V	To understand the concept of Finite element method.	3	3	1	1									3	2	3
				Apply appropriate solution techniques to the problem of moving load, Cables, Suspension Bridges and Arches.	3	3	2	3									3	1	2
				Analyze indeterminate structures by matrix method and Strain energy methods of analysis.	3	3	3	2									2	3	2
4	Concrete Technology	BTCVC504	V	To understand the various types and properties of ingredients of concrete	3											2		3	
				To understand effect of admixtures on the behavior of the fresh and hardened concrete.	3		3				2		2						2
				To formulate concrete design mix for various grades of concrete.	3	2	3	2		2		2			3		2		
5	Project Management	BTHM505	V	To understand various steps in project management and to construct network by using CPM and PERT method	3	3	3	2	3						3	2		3	3
				Acquire the knowledge and skills of engineering economics, economic comparisons and linear break even analysis	3	2	3	1	2						3	3		3	3
				Solve the civil engineering problems by using the concept of total quality management including Juran and Demings philosophy.	2	3	2	3	2						3	3		2	2
6	Design of RC Structures	BTCVC601	VI	To understand the various design philosophies used for design of reinforced concrete structures	2	2	2									1	2		
				To analyze the reinforced concrete structural element using working stress method and limit state method.	3	3		2								1	2		
				To design the reinforced concrete structural element using working stress method and limit state method.	3		3	2								1		3	

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7	Foundation Engineering	BTCVC602	VI	To predict soil behavior under the application of loads and come up with appropriate solutions to foundation design queries.	3	3	3	2	2	1	2		1	1	1		2	1	
				To Analyze the stability of slope by theoretical and graphical methods.	3	3	2	2			2						2	1	3
				To Analyze the results of in-situ tests and transform measurements and associated uncertainties into relevant design parameters.	3	3	3	3	3					1	1			3	2
8	Transportation Engineering	BTCVC603	VI	To understand various types of transportation systems and their history of development.	3	3		3		3	3			2				3	
				To analyze various properties of pavement materials used in highway construction.	3			3	2		2								
				To design the pavements by considering various aspects associated with traffic safety measures.	3	3	3	3				3				2	2		
9	Structural Audit	BTCVPE604	VI	Student will able to gain the knowledge of Bye laws, procedure of Structural audit and study the typical problems in structures.	3	-	2	-	3	-	-	-	-	-	-	3	3	3	3
				Student will able to aware of causes and types of deterioration in structures and develop skills for use of various Non-destructive tests required during auditing of structures.	3	3	2	-	-	-	-	-	-	-	3	2	3	3	2
				Student will acquire knowledge of legal procedure to conduct structural audits and prepare a Structural audit report.	3	3	-	-	3	-	-	-	-	-	3	3	3	3	3
10	Planning for Sustainable Development	BTCVOE605	VI	CO1: Understand basic concepts and principles of sustainable development and environmental degradation.	3					2	3					2	1	2	3
				CO2: Identify innovative strategies for promoting sustainable development	3	2		2	2	2	3					2	1	2	3
				CO3: Apply appropriate research methodologies for environmental sustainability.	3	3	3	2	2	2	√					2	1	2	3