

**DEPARTMENT OF CIVIL ENGINEERING**  
**CO-PO matrices of courses (Theory)**  
**CLASS - S.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	Mathematics – III	BTBS301	III	1.Understand and apply the properties of Laplace Transform and Fourier Transform.	2	1																	
				2.Formulate partial differential equation and solve one dimensional and two dimensional heat flow equation.	2	1																	
				3.Analyse and map complex functions and Solve integration of complex function by using Cauchy’s integral formula.	2	1																	
2	Mechanics of Solids	BTCVES302	III	1.Perform the stress-strain analysis.	3	2		2		1						2	1	2					
				2.Draw force distribution diagram for members and determinate beams.	3	3	3	2		1					1	1	1	1					
				3.Visualize force deformation behaviour of bodies.	2	3	3	3									3	-	1	1			
				4. Perform failure Analysis.																			
3	Building Construction and Drawing	BTCVC303	III	1: Understand the basic requirements of various building components and material used.	3					2	1	1					3	3	1				
				2: Apply the knowledge of types and methods of construction of various building components for selection of suitable building material, component type and method of construction.	3	2				2	1	1						3	3	1			
				3: Draw detailed working drawings of various building components.	3	2	3			2	1	1							3	3	1		
4	Hydraulics I	BTCVC304	III	1.To understand the properties of fluid, pressure & their measurements.	3	2	--	-	-	-	--	-	-	-	-	2	1	2	-				
				2 Apply the knowledge of properties to determine losses in pipe & analysis.	3	3	3	2	-	1	--	-	-	-	-	-	1	1	1	1			
				3 Design flow measuring devices	2	3	3	3	-	-	--	-	-	-	-	-	3	-	1	1			
5	Surveying	BTCVC305	III	1. To know the basics of leveling and Theodolite survey in elevation and angular measurements.	3	2	2		1	1			3	2			3	1	2				
				2. Perform measurements in linear/angular methods.	3	3	2	2					2					3	2	2			
				3. To apply plane table surveying in general terrain.	3	1	2			2	3		3	2			2	3	2	2			
6	Building Planning and Drawing	BTCVC401	IV	1.To plan buildings considering various principles of planning and byelaw of governing body.	3	3	3	2	2	2	1	2				2	3	2	3				
				2.Comprehend various utility requirements in buildings	3	2	3	1										2	2	2			
				3.Understand various techniques for good acoustics.	3	2	3	1										2	2				

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7	Environmental Engineering	BTCVC402	IV	1: Apply the water and wastewater treatment concept and methods.	3	2				2	3						1	3	2		
				2: Design basic water and wastewater treatment processes	3	2	3			2	3								1	3	2
				3: Describe the solid waste management and air pollution concepts.	2					3	3									1	3
8	Structural Mechanics-I	BTCVC403	IV	1.Describe the concept of structural analysis,degree of indeterminacy.	3	2				2	3						1	3	2		
				2.Calculate slopes and deflection at various locations for different types of beams.	3		3			2	3								2	3	2
				3.Identify determinate and indeterminate trusses and calculate forces in the members of trusses.	2	2						3									
9	Water Resources Engineering	BTCVC404	IV	CO1: Understand need of Irrigation in India and water requirement as per farming practice in India.	3	2	1			2	2		1			3	1	1	3		
				CO2: Understand various irrigation structures and schemes.	2	3	2	1			1			2						1	
				CO3: Develop basis for design of irrigation schemes.	2	3	1			1	1									1	3
10	Hydraulics II	BTCVC405	IV	1 Design open channel sections in a most economical way.	3	2	1			2	2		1			3	1	1	3		
				2 Know about the non -uniform flow in open channel&characterastics of hydraulic jump.	2	3	2	1			1			2						1	
				3 Understand application of momentum principal of impact of jets on plane.	2	3	1			1	1									1	3
11	Engineering Geology	BTCVC406	IV	1: Recognize the different landforms which are formed by various geological agents.	3	2	2		1		2					3	1	2	3		
				2: Identify the origin, texture and structure of varoius rocks and physical properties of minerals.	3	2	2		1		2			3	1	2				2	3
				3: Understand how the varoius geological conditions affect the design parameters of civil engineering structures.	3	2	2		2	3	2		1		3	1	2				2