

# Shree Santkrupa Institute of Engineering and Technology

Department of Civil Engineering

Academic Year: 2022-23

## Semester: III

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTBS301	Mathematics – III	3	1	-	4
2	BTCVES302	Mechanics of Solids	3	1	-	4
3	BTCVC303	Building Construction & Drawing	2	1	-	3
4	BTCVC304	Hydraulics -I	3	1	-	4
5	BTCVC305	Surveying	2	1	-	3
6	BTHM306	Soft Skill Development	2	-	-	AU
7	BTCVL 307	Solid Mechanics Laboratory	-	-	2	1
8	BTCVL 308	Hydraulics-I Laboratory	-	-	2	1
9	BTCVL 309	Surveying Laboratory	-	-	2	1
10	BTES210P	Internship –I Evaluation (From Sem II)	-	-	-	AU

## Semester: IV

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC401	Building Planning and Drawing	2	-	-	2
2	BTCVC402	Environmental Engineering	2	-	-	2
3	BTCVC403	Structural Mechanics - I	2	1	-	3
4	BTCVC404	Water Resources Engineering	3	-	-	3
5	BTCVC405	Hydraulics - II	2	1	-	3
6	BTCVC406	Engineering Geology	2	1	-	3
7	BTCVL407	Building Planning and CAD Lab.	-	-	2	1
8	BTCVL408	Environmental Engg. Lab.	-	-	2	1
9	BTCVL409	HE-II Lab.	-	-	2	1
10	BTCVP410	Field Training / Internship/Industrial Training	-	-	-	-

## Semester: V

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC 501	Design of Steel Structures	2	1	-	3
2	BTCVC 502	Geotechnical Engineering	3	1	-	4
3	BTCVC 503	Structural Mechanics –II	2	1	-	3
4	BTCVC 504	Concrete Technology	2	-	-	2
5	BTHM505	Project Management	3	-	-	3
6	BTCVPE506	Town and Urban Planning	3	-	-	3
7	BTCVES507	Software applications in Civil Engineering	2	-	-	AU
8	BTCVL508	SDD of Steel Structures Lab.	-	-	2	1
9	BTCVL509	Geotechnical Engineering Lab.	-	-	2	1
10	BTCVL510	Concrete Technology Lab.	-	-	2	1
11	BTCVP410	Internship – 2 Evaluation	-	-	-	AU

## Semester: VI

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC601	Design of RC Structures	3	1	-	4
2	BTCVC602	Foundation Engineering	3	1	-	4
3	BTCVC603	Transportation Engineering	3	-	-	3
4	BTCVPE604E	Ground Improvement Techniques	3	-	-	3
5	BTCVOE605C	Business Communication and Presentation Skills	3	-	-	3
6	BTHM606	Indian Constitution	2	-	-	AU
7	BTCVL607	SDD of RC Structures Lab.	-	-	2	1
8	BTCVL608	Transportation Engineering Lab	-	-	2	1
9	BTCVM609	Mini Project	-	-	2	1
10		Field Training/ Internship/Industrial Training	-	-	-	-

**Semester: VII**

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC701	Design of Concrete Structures - II	2	1	-	3
2	BTCVC702	Infrastructure Engineering	3	-	-	3
3	BTCVC703	Water Resources Engineering	3	1	-	4
4	BTCVC704	Professional Practices	2	1	-	3
5	BTCVE705A	Construction Techniques	3	-	-	3
6	BTCVOE706E	Town and Urban Planning	3	-	-	AU
7	BTCVL707	Design & Drawing of RC & Steel Structures	-	-	2	1
8	BTCVL708	Professional Practices	-	-	2	1
9	BTCVT709	Field Training /Internship/Industrial	-	-	-	1
10	BTCVS710	Seminar	-	-	2	1
11	BTCVP711	Project Stage-I**	-	-	6	3

**Semester: VIII**

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVSS801D	Maintenance and Repair of Concrete Structures	3	-	-	3
2	BTCES802D	Mechanical Characterization of Bituminous Materials	3	-	-	3
3	BTCEP803	In-house Project or Internship and Project in Industry* (Project - II)	30	-	-	15

### Course Outcomes

Semster : III		
Course Name		Engineering Mathematics – III
Course Code		BTBS301
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to:
1	CO 1	Explain the application of the Laplace Transform to find solutions of system of linear equations arising in many engineering problem
	CO 2	Demonstrate and apply the concept Laplace Transform
	CO 3	Interpret Computation of Fourier Transform and their applications to engineering problems
	CO 4	Identify Partial Differential Equations and Their Applications.
	CO 5	Evaluate Functions of Complex Variables.
Semster : III		
Course Name		Mechanics of Solids
Course Code		BTCVES302

<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
CO 1	Explain the mechanical behaviour of engineering materials subjected to various types of stresses and compute the resulting strain and strain energy.	
CO 2	Analyze the bending of various types of beams under static loading conditions and compute the shear stress distribution for different cross sections of beams.	
CO 3	Show knowledge of principal planes, stresses and strains and analyse the elastic deformation of members and apply different theories of elastic failures	
CO 4	Determine torsion for the circular shaft and analyse the crippling load and equivalent length for various types of columns of different end conditions.	
CO 5	Adapt failure analysis	
<b>Semster : III</b>		
<b>3 Course Name</b>	<b>Building Construction &amp; Drawing</b>	
<b>Course Code</b>	<b>BTCVC303</b>	
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to:</b>
CO 1	Classify different types of masonry structures.	
CO 2	Explain the composition of concrete and effect of various parameters affecting strength.	
CO 3	Identify the components of building and their purposes.	
CO 4	Compare the types of flooring roofs.	
CO 5	Illustrate the precast & pre-engineered building construction techniques.	
<b>Semster : III</b>		
<b>4 Course Name</b>	<b>Hydraulics -I</b>	
<b>Course Code</b>	<b>BTCVC304</b>	
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to:</b>
CO 1	Illustrate the various flow measuring devices	
CO 2	Determine the properties of fluid and pressure and their measurement	
CO 3	Make use of different fluid kinematic and laminar flow equations to solve problems.	
CO 4	Estimate the friction losses in laminar and turbulent flows	
CO 5	Explain fundamentals of pipe flow, losses in pipe and analysis of pipe network	
<b>Semster : III</b>		
<b>5 Course Name</b>	<b>Surveying</b>	
<b>Course Code</b>	<b>BTCVL305</b>	
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
CO 1	Classify measurements in linear/angular methods.	
CO 2	Apply plane table surveying in general terrain.	
CO 3	Demonstrate the basics of leveling and Theodolite survey in elevation and angular measurements.	
CO 4	Justify field procedures in basic types of surveys, as part of a surveying team.	
CO 5	Examine drawing techniques in the development of a topographic map.	
<b>Semster : III</b>		
<b>6 Course Name</b>	<b>Soft Skill Development</b>	
<b>Course Code</b>	<b>BTHM306</b>	
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, student will be able to:</b>
CO 1	Demonstrates the skills to manage and express their emotions, thoughts, impulses and stress in effective ways.	
CO 2	Apply various time management techniques in productive manner.	
CO 3	Improve performance, personal growth, or a sense of purpose	
CO 4	Employ interpersonal communication skills to establish and enhance personal and work-based relationships.	
CO 5	Design an effective presentation and prepare participants to speak with greater control in front of others.	
<b>Semster : III</b>		
<b>7 Course Name</b>	<b>Solid Mechanics Laboratory</b>	
<b>Course Code</b>	<b>BTCVL 307</b>	

Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Assess the young's modulus for ductile materials.	
CO 2	Analyze the various points on stress strain diagram.	
CO 3	Analyse the compression strength of different materials	
CO 4	Test the shear stress of different materials. .	
CO 5	Illustrate failure analysis	
<b>Semster : III</b>		
8	<b>Course Name</b>	<b>Hydraulics Laboratory I</b>
	<b>Course Code</b>	<b>BTCVL307</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Illustrate the various flow measuring devices	
CO 2	Determine the properties of fluid and pressure and their measurement	
CO 3	Explain Bernoulli's principles through simple illustrations.	
CO 4	Interpret hydrostatic law, principle of buoyancy and stability of a floating body	
CO 5	Illustrate of pipe flow, losses in pipe and analysis of pipe network	
<b>Semster : III</b>		
9	<b>Course Name</b>	<b>Surveying Laboratory</b>
	<b>Course Code</b>	<b>BTCVL309</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Classify measurements in linear/angular methods.	
CO 2	Apply plane table surveying in general terrain.	
CO 3	Demonstrate the basics of leveling and Theodolite survey in elevation and angular measurements.	
CO 4	Justify field procedures in basic types of surveys, as part of a surveying team.	
CO 5	Examine drawing techniques in the development of a topographic map.	
<b>Semster : IV</b>		
1	<b>Course Name</b>	<b>Building Planning and Drawing</b>
	<b>Course Code</b>	<b>BTCVC401</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Plan buildings considering various principles of planning and byelaw of governing body	
CO 2	Identify the different utility needs in buildings.	
CO 3	Outline various techniques for good acoustics.	
CO 4	Examine the concept of Fire resistance of building	
CO 5	Relate Concept of green building	
<b>Semster : IV</b>		
2	<b>Course Name</b>	<b>Environmental Engineering</b>
	<b>Course Code</b>	<b>BTCVC 402</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Utilize the techniques and concept of water treatment.	
CO 2	Design the foundational processes for water treatment facilities.	
CO 3	Utilize the techniques and concept of wastewater treatment.	
CO 4	Utilize the principles of solid waste management.	
CO 5	Explain the concept of sanitations and its application.	
<b>Semster : IV</b>		
3	<b>Course Name</b>	<b>Structural Mechanics - I</b>
	<b>Course Code</b>	<b>BTCVC403</b>

Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Explain the concept of structural analysis, degree of indeterminacy.	
CO 2	Illustrate slopes and deflection at various locations for different types of beams.	
CO 3	Identify determinate and indeterminate trusses and calculate forces in the members of trusses, Perform the distribution of the moments the in continuous beam and frame.	
CO 4	Asses the analysis of both sway and no-sway frame structures using the Slope-Deflection equations.	
CO 5	Apply the principle of virtual work to calculate the deflections of truss, beam and frame structures.	
<b>Semster : IV</b>		
<b>Course Name</b>		<b>Water Resource Engineering</b>
<b>Course Code</b>		<b>BTCVC404</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Outline the need of Irrigation in India and water requirement as per farming practice in India	
CO 2	Illustrate various irrigation structures and schemes.	
CO 3	Develop basis for design of irrigation schemes.	
CO 4	Demonstrate Hydrology cycle, measurement and lossess of water and study of various hydrograph and its Analysis.	
CO 5	Demonstrate the concept of Lift Irrigation, Water Logging and its Drainage.	
<b>Semster : IV</b>		
<b>Course Name</b>		<b>Hydraulics - II</b>
<b>Course Code</b>		<b>BTCVC405</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Design open channel sections in a most economical way.	
CO 2	Explain the non-uniform flows in open channel and the characteristics of hydraulic jump.	
CO 3	Illustrate the application of momentum principle of impact of jets on plane.	
CO 4	Solve the problems of gradually and rapidly varied flows in open channels under steady state condition	
CO 5	Illustrate the working principle of pumps and turbines	
<b>Semster : IV</b>		
<b>Course Name</b>		<b>Engineering Geology</b>
<b>Course Code</b>		<b>BTCVC 406</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Demonstrate different land forms which are formed by various geological agents.	
CO 2	Identify the origin ,texture and structure of various rocks and physical properties of minerals.	
CO 3	Identify specific geological formations which have an influence on the structure of civil engineering.	
CO 4	Explain geological hazards, geohydrological characters of thr rocks, mass wasting process and good building stones.	
CO 5	Demonstrate various geological conditions affect the design parameters of structures.	
<b>Semster : IV</b>		
<b>Course Name</b>		<b>Building Planning and CAD Lab.</b>
<b>Course Code</b>		<b>BTCVL407</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Relate the reading plan, Elevation and Section of various structure.	
CO 2	Evaluate how to plan any Building.	
CO 3	Make use of knowledge to draw plan, elevation and section of load bearing and framed structures.	
CO 4	Make use of knowledge to draw plan, elevation and section of public structures	
<b>Semster : IV</b>		
<b>Course Name</b>		<b>Environmental Engineering lab</b>
<b>Course Code</b>		<b>BTCVL408</b>

	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
	CO 1	Utilize the techniques and concept of water treatment.	
	CO 2	Determine the necessary amount of water and wastewater treatment.	
	CO 3	Determine the amount of pollutants present in the air, water, and wastewater	
	CO 4	Analyze the survival conditions for the microorganism and its growth rate	
	<b>Semster : IV</b>		
9	<b>Course Name</b>	<b>HE-II Lab.</b>	
	<b>Course Code</b>	<b>BTCVL409</b>	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
	CO 1	Design open channel sections in a most economical way.	
	CO 2	Design the different irrigation structures surplus weir	
	CO 3	Explain the non-uniform flows in open channel and the characteristics of hydraulic jump.	
	CO 4	Solve the problems of gradually and rapidly varied flows in open channels under steady state condition	
	CO 5	Illustrate the working principle of pumps and turbines	
	CO 5		
	<b>Semster : V</b>		
1	<b>Course Name</b>	Design of Steel Structures	
	<b>Course Code</b>	BTCVC 501	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to :</b>
	CO 1	Identify and compute the design loads and the stresses developed in the steel member.	
	CO 2	Analyze and design the various connections and identify the potential failure modes.	
	CO 3	Analyze and design various tension, compression and flexural members.	
	CO 4	Understand provisions in relevant BIS Codes.	
	CO 5	Develop ability to the students in the sector of Analysis and Design of Steel Structures.	
	<b>Semster : V</b>		
2	<b>Course Name</b>	Geotechnical Engineering	
	<b>Course Code</b>	BTCVC502	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to :</b>
	CO 1	Determine different engineering properties of soil.	
	CO 2	classify soil based on standard geotechnical engineering practices.	
	CO 3	Summarize stresses in soil, permeability and seepage aspects.	
	CO 4	Develop ability to take up soil design of different types of foundation.	
	CO 5	Explain direct shear test and estimate shear strength parameters.	
	<b>Semster : V</b>		
3	<b>Course Name</b>	Structural Mechanics - II	
	<b>Course Code</b>	BTCVC 503	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to :</b>
	CO 1	Analyze the Truss by Energy Method.	
	CO 2	Illustrate the concept of influence line and Moving load.	
	CO 3	Analyze the cables, Suspension bridges and Arches.	
	CO 4	Analyze the Indeterminant structure by direct flexibility method and direct stiffness method.	
	CO 5	Explain the principles and concepts related to the finite element methods	
	<b>Semster : V</b>		
4	<b>Course Name</b>	Concrete Technology	
	<b>Course Code</b>	BTCVC504	

Course Outcome No	Course Outcome Statement	After studying this course, students will be able to:
CO 1	Demonstrate the various types and properties of ingredients of concrete.	
CO 2	Outline effect of admixtures on the behavior of the fresh and hardened concrete.	
CO 3	Formulate concrete design mix for various grades of concrete.	
CO 4	Analyze various special concrete and their applications.	
CO 5	Show basic knowledge of Nondestructive testing.	
<b>Semster : V</b>		
5	<b>Course Name</b>	Project Management
	<b>Course Code</b>	BTHM505
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Explain various steps in project Management, different types of charts.	
CO 2	Construct network by using CPM and PERT method.	
CO 3	Measure the optimum duration of project with the help of various time estimates.	
CO 4	Explain the concept of engineering economics, economic comparisons, and linear break even analysis problems.	
CO 5	Summarize the concept of total quality Management including Juran and Deming's philosophy.	
<b>Semster : V</b>		
6	<b>Course Name</b>	Town and Urban Planning
	<b>Course Code</b>	BTCVPE506
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Comprehend the concept of town & Urban planning and their essential attributes	
CO 2	Identify elements of planning and regulations of the same	
CO 3	Implement guidelines provided by standard authorities	
CO 4	Illustrate the MRTP and land acquisition acts.	
CO 5	Interpret the various planning methodology	
<b>Semster : V</b>		
7	<b>Course Name</b>	Software applications in Civil engg
	<b>Course Code</b>	BTCVES507
Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
CO 1	Illustrate various softwares in civil engineering .	
CO 2	Use applications of various softwares in specialized works of civil engineering	
CO 3	Demonstrate different types of software.	
CO 4	Learn and practice of civil software.	
CO 5	Develop the concepts to design in software.	
<b>Semster : V</b>		
8	<b>Course Name</b>	SDD of Steel Structures Lab.
	<b>Course Code</b>	BTCVL508
Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to :
CO 1	Illustrate use of IS 800 1984 or 2007.	
CO 2	Analyze and Design of Industrial Shed: Roof Truss with Necessary Bracing System, Purlins, Column and Column Base	
CO 3	Simulate a practical design requirement in to a theoretical statement to solve mathematically to arrive at a safe economical and realistic feasible solution that can be executed.	
CO 4	Develop ability to the students in the sector of Analysis and Design of Steel Structures.	
CO 5		
CO 6		
<b>Semster : V</b>		
9	<b>Course Name</b>	Geotechnical Engineering Lab
	<b>Course Code</b>	(BTCVL502)

	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to :</b>
	CO 1	Determine different engineering properties of soil.	
	CO 2	classify soil based on standard geotechnical engineering practices.	
	CO 3	Summarize stresses in soil, permeability and seepage aspects.	
	CO 4	Develop ability to take up soil design of different types of foundation.	
	CO 5	Explain direct shear test and estimate shear strength parameters.	
	CO 6		
	<b>Semster : V</b>		
10	<b>Course Name</b>	Concrete Technology Lab.	
	<b>Course Code</b>	BTCVL510	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
	CO 1	Identify Quality Control tests on concrete making materials and Understand	
	CO 2	Identify the functional role of ingredients of concrete and apply this knowledge	
	CO 3	Determine workability of concrete in laboratory by Slump test, Compaction	
	CO 4	Relate behavior of fresh and hardened concrete to mix design	
	CO 5	Interpret and apply Indian Standard test methods and specifications	
	CO 6		
	<b>Semster : VI</b>		
1	<b>Course Name</b>	Design of RC Structure.	
	<b>Course Code</b>	BTCVC601	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>After studying this course, students will be able to:</b>
	CO 1	Illustrate various design philosophies used in design of reinforced concrete.	
	CO 2	Analyze and design the reinforced concrete beam by limit state and working stress method.	
	CO 3	Demonstrate design. Shear and Bond.	
	CO 4	Analyze and design the reinforced concrete slab, Stair case by Limit State method.	
	CO 5	Analyze and design the reinforced concrete column, footing by working stress method & Limit State method.	
	CO 6		
	<b>Semster : VI</b>		
2	<b>Course Name</b>	Foundation Engineering	
	<b>Course Code</b>	BTCVC602	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, students will be able to :</b>
	CO 1	Explain the principles and methods of Soil Exploration.	
	CO 2	Identify soil behaviour under the applications of loads.	
	CO 3	Analyze and design the shallow foundation.	
	CO 4	Analyze the results of in-situ tests and transform measurements.	
	CO 5	Analyze the stability of slope by theoretical and graphical methods.	
	CO 6		
	<b>Semster : VI</b>		
3	<b>Course Name</b>	Transportation Engineering	
	<b>Course Code</b>	BTCVC603	
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the students will be able to:</b>
	CO 1	Make use of principles of Highway geometrics design as per IRC standard	
	CO 2	Identify geometric design for the Highway& Basic concept of Pavement design	
	CO 3	Choose Construction procedure for different type of pavements	
	CO 4	Summarize the Types of pavements & Materials required for highway construction.	
	CO 5	Analyze the Traffic engineering& different types of traffic control device.	
	CO 6		

Semster : VI		
4	<b>Course Name</b>	Ground Improvement Techniques
	<b>Course Code</b>	BTCVPE604
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		By the end of the course, the students will be able to:
	CO 1	Analyze and decide the suitable method dewatering of soil as per need of the project.
	CO 2	Analyze and decide the suitable method of Compaction of soil as per need of the project.
	CO 3	Illustrate the fundamental concepts of ground improvement techniques
	CO 4	Illustrate reinforced wall design using steel strip or geo-reinforcement
	CO 5	Demonstrate the methods of soil stabilization
	CO 6	
Semster : VI		
5	<b>Course Name</b>	Business Communication and Presentation Skills
	<b>Course Code</b>	BTCVOE605C
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		By the end of the course, student will be able to:
	CO 1	Inculcate basics of business communication skills & relevant tools.
	CO 2	Understand business SOPs and essentials of the same.
	CO 3	Adapt modern skills regarding communication, presentation & team working.
	CO 4	Develop leadership skill and team building capacity.
	CO 5	Acquire presentation skill and non-verbal technique.
	CO 6	
Semster : VI		
6	<b>Course Name</b>	Indian Constitution
	<b>Course Code</b>	BTHM606
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		By the end of the course, student will be able to:
	CO 1	Outline Indian Constitution, Features, fundamental rights and duties etc.
	CO 2	Illustrate the structure of the central government and its administration.
	CO 3	Illustrate the structure of the State government and its administration.
	CO 4	Recall local administration like District's administration, Municipal corporation etc.
	CO 5	Explain the role and functioning of Election Commission.
	CO 6	
Semster : VI		
7	<b>Course Name</b>	SDD of RC Structures Lab
	<b>Course Code</b>	BTCVL607
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		By the end of the course, student will be able to:
	CO 1	Analyze and Dsign of reinforced concrete slab, Stair case by Limit State Method.
	CO 2	Analyze and Dsign of reinforced concrete Beam by Limit State Method.
	CO 3	Analyze and Dsign of reinforced concrete column by Limit State Method.
	CO 4	Analyze and Dsign of reinforced concrete Footing by Limit State Method.
	CO 5	Analyze and Dsign of reinforced concrete Retaing Wall by Working Stress Method.
	CO 6	
Semster : VI		
8	<b>Course Name</b>	Transportation Engineering Laboratory
	<b>Course Code</b>	BTCVC608
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		By the end of the course, student will be able to:
	CO 1	Identify engineering properties of aggregate
	CO 2	Identify the grade & properties of bitumen.
	CO 3	Perform tests on various road construction materials.

	CO 4	Perform CBR tests on local soils
	CO 5	To determine subgrade properties needed for roadways
	CO 6	
<b>Semster : VI</b>		
9	<b>Course Name</b>	Mini Project
	<b>Course Code</b>	BTCVM609
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>After studying this course, students will be able to:</b>
	CO 1	Summarize the literature in the specified area on your own.
	CO 2	Apply the identified concepts and engineering tools to arrive at design solutions for the identified engineering problem.
	CO 3	Illustrate how to identify the issues and challenges of industry.
	CO 4	Design a detailed report on the application of emerging technologies in the selected industry.
	CO 5	Develop leadership skills & Life Long Learning.
	CO 6	
<b>Semster : VII</b>		
1	<b>Course Name</b>	Design of concrete Structure - II
	<b>Course Code</b>	BTCVC 701
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Identify the behavior, analyze and design of the beam sections subjected to torsion.
	CO 2	Analyze and design of axially and eccentrically loaded column and construct the interaction diagram for them
	CO 3	Explain various concepts, systems and losses in pre-stressing.
	CO 4	Analyze and design the rectangular and symmetrical I-section pre-stressed beam/girders
	CO 5	Illustrate Structural audit of various structures.
<b>Semster : VII</b>		
2	<b>Course Name</b>	Infrastructure Engineering
	<b>Course Code</b>	BTCVC702
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Relate about the basics and design of various components of railway engineering
	CO 2	Extends the types and functions of tracks, junctions and railway stations
	CO 3	Distinguish about the basics and design of various components of bridge engineering Substructure
	CO 4	Identify about the types and design of various components of bridge engineering Superstructure.
	CO 5	Demonstrate the types and components of docks and harbors & Know about the aircraft characteristics, planning and components of airport
<b>Semster : VII</b>		
3	<b>Course Name</b>	Water Resources Engineering
	<b>Course Code</b>	BTCVC703
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Outline the need of Irrigation in India and water requirement as per farming practice in India
	CO 2	Illustrate Reservoirs, Dam and various Hydraulic Structures.
	CO 3	Illustrate various irrigation structures and schemes.
	CO 4	Demonstrate Hydrology cycle, measurement and lossess of water and study of various hydrograph and its Analysis.
	CO 5	Demonstrate the concept of Lift Irrigation, Water Logging and its Drainage.
<b>Semster : VII</b>		
4	<b>Course Name</b>	Professional Practices
	<b>Course Code</b>	BTCVC704
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Illustrate importance of preparing estimates, its types under different conditions

	CO 2	Analyze the methods of estimation in detail along with specification of various works
	CO 3	Demonstrate analysis of rates for various civil works & understanding overall process of tendering.
	CO 4	Outline the various types of contract,accounts in PWD,methods for initiating the works in PWD & tendering
	CO 5	Compare the valuation of land & buildings,various methods & factors affecting valuation.
<b>Semster : VII</b>		
5	<b>Course Name</b>	Construction Techniques.
	<b>Course Code</b>	BTCVE 705A
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, students will be able to:</b>
	CO 1	Identify the planning of new project with site accessibility and services required.
	CO 2	Recommend the various civil construction equipment's.
	CO 3	Identify the layout of RMC plant, production, capacity and operation process.
	CO 4	Illustrate the Various types of Form Work.
	CO 5	Determine various aspect of road construction, construction of diaphragm walls, railway track construction etc.
<b>Semster : VII</b>		
6	<b>Course Name</b>	Town and Urban planning
	<b>Course Code</b>	BTCVOE706E
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Comprehend the concept of town & Urban planning and their essential attributes
	CO 2	Identify elements of planning and regulations of the same
	CO 3	Implement guidelines provided by standard authorities
	CO 4	Illustrate the MRTTP and land acquisition acts.
	CO 5	Interpret the various planning methodology
<b>Semster : VII</b>		
7	<b>Course Name</b>	Design and Drawing of RC and Steel Structure.
	<b>Course Code</b>	(BTCVL707)
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Analyze and Design of the reinforced concrete slab by Limit State method.
	CO 2	Analyze and Design of the reinforced concrete Beam by Limit State method.
	CO 3	Analyze and Design of the reinforced concrete column and Footing by Limit State method.
	CO 4	Analyze and Design of structural Roof Truss, Bracing Systeme and Purline by Limit State method.
	CO 5	Analyze and Design of structural Column and Column Bases by Limit State method.
<b>Semster : VII</b>		
8	<b>Course Name</b>	Professional Practices
	<b>Course Code</b>	BTCVL708
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Out line of overall knowledge require about estimating & coasting
	CO 2	Estimate of load bearing structure & framed structure
	CO 3	Evaluate estimate & rate analysis of different Civil works
	CO 4	Create Valuation of civil works like residential/public/hotels buildings etc
	CO 5	Compose detailed specification & rate analysis of civil works like roads,water supply,irrigation etc.
<b>Semster : VII</b>		
10	<b>Course Name</b>	Seminar
	<b>Course Code</b>	BTCVS710
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Establish the motive behind any topic of interest and create a technical presentation's methodology.
	CO 2	Collect and Comprehend data regarding any topic of interest

	CO 3	Organize a detailed literature survey and build a document with respect to technical publications
	CO 4	Constructive seminar presentation and improve soft skills.
<b>Semster : VII</b>		
11	<b>Course Name</b>	Project Stage-I
	<b>Course Code</b>	BTCVP711
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>By the end of the course, the students will be able to:</b>
	CO 1	Identify key area in civil engineering and finalize problem statement.
	CO 2	Review the literature to search for technical information from various resources on selected problem.
	CO 3	Formulate the appropriate solution methodology.
	CO 4	Apply the principles, tools and techniques to solve the problem.
	CO 5	Prepare a report and presentation of project.
<b>Semster : VIII</b>		
1	<b>Course Name</b>	Maintenance and Repair of Concrete Structures
	<b>Course Code</b>	BTCVSS801D
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>After studying this course, students will be able to:</b>
	CO 1	Perceive the corrosion mechanisms of concrete structures
	CO 2	Deterioration of cementitious systems
	CO 3	Non-destructive tests (NDT)
	CO 4	Recognize the Surface repairs in concrete structures
	CO 5	Strengthening and stabilization of concrete structures
<b>Semster : VIII</b>		
2	<b>Course Name</b>	Energy Efficiency Acoustics and Daylighting in Building
	<b>Course Code</b>	BTCESS802A
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>After studying this course, students will be able to:</b>
	CO 1	Discuss on orientation and lighting provision in building.
	CO 2	Explain Passive, Active architecture and energy audit of building.
	CO 3	Explain recycling and incorporate energy of different building materials.
	CO 4	Illustrate various method of improveing efficiency of water uses in green building.
	CO 5	Apply the different green building raating systeme.
<b>Semster : VIII</b>		
3	<b>Course Name</b>	Project Stage-II
	<b>Course Code</b>	BTCEP803
	<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
		<b>After studying this course, students will be able to:</b>
	CO 1	Learning latest trends and technology in the selected field of interest
	CO 2	Apply the acquired knowledge to practical situations
	CO 3	Develop self-interest to explore the selected technical field of interest in future.
	CO 4	Develop better interpersonal communication skills and increase self-confidence.
	CO 5	Enhance presentation and documentation skills.