Shree Santkrupa Institute of Engineering and Technology

Department of Civil Engineering

Academic Year: 2020-21

Semester: III

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTBSC301	Mathematics – III	3	1	-	4
2	BTCVC302	Mechanics of Solids	3	1	-	4
3	BTCVC303	Hydraulics I	2	1	-	3
4	BTCVC304	Surveying I	2	1	-	3
5	BTCVC305	Building Construction	2	-	-	2
6	BTCVC306	Engineering Geology	2	-	-	2
7	BTHM303	Soft Skills Development	2	-	-	AU
8	BTCVL307	Hydraulics Laboratory I	-	-	2	1
9	BTCVL308	Surveying Laboratory I	-	-	2	1
10	BTCVL309	Building Construction - Drawings Laboratory	-	-	2	1
11	BTCVL310	Engineering Geology Lab	-	-	2	1
12	BTCVS311	Seminar on Topic of Field Visit to Foundation Work	-	-	1	AU
13	BTCVF312	Field Training / Internship/Industrial Training Evaluation (from semester II)	-	-	-	1

Semester: IV

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC401	Hydraulics II	2	1	-	3
2	BTCVC402	Surveying – II	2	1	-	3
3	BTCVC403	Structural Mechanics-I	3	1	-	4
4	BTID405	Product Design Engineering	1	2	-	3
5	BTCVE404A	Numerical Methods in Engineering	3	-	-	3
6	BTCVC406	Engineering Management	1	-	-	AU
7	BTHM3401	Basic Human Rights	2	-	-	AU
8	BTCVL407	Hydraulics Laboratory II	-	-	2	1
9	BTCVL408	Surveying Laboratory II	-	-	4	2
10	BTCVL409	Mechanics of Solids Laboratory	-	-	2	1

11	BTCVM410	Mini Project	-	-	2	1
12	BTCVF411	Seminar on Topic of Field Visit to works involving Superstructure Construction	-	-	1	1

Semester: V

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC 501	Design of Steel Structures	2	2	-	4
2	BTCVC 502	Structural Mechanics-II	2	1	-	3
3	BTCVC 503	Soil Mechanics	3	1	-	4
4	BTCVC 504	Environmental Engineering	2	-	-	2
5	BTCVC 505	Transportation Engineering	2	-	-	2
6	BTCVE506D	Business Communication & Presentation Skills	3	-	-	3
7	BTHM507	Essence of Indian Traditional Knowledge	1	-	-	AU
8	BTCVL508	Soil Mechanics Laboratory	-	-	2	1
9	BTCVL509	Environmental Engineering Laboratory	-	-	2	1
10	BTCVL510	Transportation Engineering Laboratory	-	-	2	1
11	BTCVS511	Seminar on Topic of Field Visit to works related to Building Service	-	-	1	AU

Semester: VI

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTCVC601	Design of Concrete Structures I	3	1	-	3
2	BTCVC602	Foundation Engineering	2	1	-	3
3	BTCVC603	Concrete Technology	2	1	-	3
4	BTCVC604	Project Management	2	1	-	2
5	BTCVE605E	Advanced Soil Mechanics	3	-	-	3
6	BTCVC606	Building Planning and Design	2	-	-	2
7	BTCVL607	Concrete Technology Laboratory	-	-	2	1
8	BTCVL608	Building Planning, Design and Drawing Laboratory	-	-	4	2
9	BTCVM609	Community Project (Mini Project)	-	-	2	1
10	BTCVS610	Seminar on Topic of Field Visit Road Construction	-	-	1	AU
11	BTCVF611	Industrial Training $	-	-	2	-

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 (Lab.)	-	-	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	BTCESS802D	Mechanical Characterization of Bituminous Materials	3	-	-	3
3	BTCEP803	In-house Project or Internship and Project in Industry* (Project - II)	30	-	-	15

Course Outcomes

1	**Semster : III**		
	Course Name		**Engineering Mathematics – III**
	Course Code		**BTBSC301**
	Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to:**
	CO 1	Explain the application of the Laplace Transform to find solutions of system of linear equations arising in many engineering problem	
	CO 2	Demonstarte 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		
2	**Course Name**		**Mechanics of Solids**

Course Code		**BTCVC302**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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 elsatic 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	
Semster : III		
3 **Course Name**		**Hydraulics I**
Course Code		**BTCVC303**
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	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	
Semster : III		
4 **Course Name**		**Surveying -I**
Course Code		**BTCVC304**
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.	
Semster : III		
5 **Course Name**		**Building Construction**
Course Code		**BTCVC305**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
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 there purposes.	
CO 4	Compare the types of flooring roofs.	
CO 5	Illustrate the precast & pre-engineered building construction techniques.	
Semster : III		
6 **Course Name**	**Engineering Geology**	
Course Code	**BTCVC 306**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Identify the 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	Illustrate distinct geological structures which have influence on the civil engineering structure.	
CO 4	Demonstrate how the various geological conditions affect the design parameters of structures.	
CO 5	Explain geological hazards, geohydrological characters of thr rocks, mass wasting process and good building stones.	
7 **Semster : III**		
Course Name	**Soft Skill Development**	
Course Code	**BTHM303**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, student will be able to:**
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.	
Semster : III		
8 **Course Name**	**Hydraulics Laboratory I**	
Course Code	**BTCVL307**	
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	
Semster : III		
9 **Course Name**	**Surveying Laboratory I**	

Course Code		**BTCVL308**
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.	
CO 6		
Semster : III		
10 **Course Name**		**Building Construction - Drawings Laboratory**
Course Code		**BTCVL309**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Classify different types of masonry structures.	
CO 2	Identify the components of building and there purposes.	
CO 3	Compare the types of flooring roofs.	
CO 4	Illustrate the precast & pre-engineered building construction techniques.	
CO 5	Compare various building materials & their use.	
Semster : III		
11 **Course Name**		**Engineering Geology Laboratory**
Course Code		**BTCVL310**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Illustrate basic concept, common rocks, minerals, their significance and application in civil engineering.	
CO 2	Demonstrate tectonic effects, Geological structures and their significance in Civil Engineering.	
CO 3	Demonstrate topographical features and geological maps.	
CO 4	Illustrate the litholog subsurface.	
CO 5	Interpret Geological Structure Models.	
Semster : III		
12 **Course Name**		**Seminar on Topic of Field Visit to Foundation Work**
Course Code		**BTCVS311**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Establish the motive behind any topic of interest and create a technical presentation's methodology.	

CO 2	Comprehend concept of Foundation and methods.	
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.	
	Semster : IV	
1 **Course Name**		**Hydraulics II**
Course Code		**BTCVC401**
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	
	Semster : IV	
2 **Course Name**		**Surveying – II**
Course Code		**BTCVC402**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Clsssify different types of curves on roads and their preliminary survey.	
CO 2	Demonstrate setting of curves, buildings, culverts and tunnels.	
CO 3	Classify different geodetic methods of survey such as triangulation, trigonometric leveling.	
CO 4	Explain modern advanced surveying techniques.	
CO 5	Make use of sub tense bar for distance measurement.	
	Semster : IV	
3 **Course Name**		**Structural Mechanics - I**
Course Code		**BTCVC403**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, 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	Assess 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.	
	Semster : IV	
4 **Course Name**		**Product Design Engineering**
Course Code		**BTID405**

Course Outcome No	Course Outcome Statement	By the end of the cource, students will be able to:
CO 1	Explain the product specification.	
CO 2	Classify the computer operation principles.	
CO 3	Utilize self-control to follow design guidelines in one's own work.	
CO 4	Develop design documentation for information exchange.	
CO 5	Design a system as a whole or a simple set of components.	
	Semster : IV	
5 **Course Name**		**Numerical Methods in Engineering**
Course Code		**BTCVE404A**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to:**
CO 1	Discuss the concept of Computation	
CO 2	Illustrate the concept of various Numerical Techniques	
CO 3	Evaluate the given Engineering problem using the suitable Numerical Technique	
CO 4	Develop the computer programming based on the Numerical Techniques	
	Semster : IV	
6 **Course Name**		**Engineering Management**
Course Code		**BTCVC406**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Demonstrate the nuances of management functions.	
CO 2	Analyze the framework of a business organization.	
CO 3	Adapt an empirical approach toward business situations.	
CO 4	Apply various Management techniques.	
CO 5	Make a use of Material Management , inventary control for any construction site	
	Semster : IV	
7 **Course Name**		**Basic Human Rights**
Course Code		**BTHM3401**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Expain the history of human rights.	
CO 2	Recall responsibilities of others caste, religion, region and culture.	
CO 3	Remember the importance of groups and communities in the society.	
CO 4	Analyse the philosophical and cultural basis and historical perspectives of human	

CO 5	Aware of their responsibilities towards the nation.	
Semster : IV		
Course Name	**Hydraulics Laboratory II**	
Course Code	**BTCVL407**	
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	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	
Semster : IV		
Course Name	**Surveying Laboratory II**	
Course Code	**BTCVL408**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Clsssify different types of curves on roads and their preliminary survey.	
CO 2	Demonstrate setting of curves, buildings, culverts and tunnels.	
CO 3	Classify different geodetic methods of survey such as triangulation, trigonometric leveling.	
CO 4	Explain modern advanced surveying techniques.	
CO 5	Make use of sub tense bar for distance measurement.	
Semster : IV		
Course Name	**Mechanics of Solids Laboratory**	
Course Code	**BTCVL409**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Assess the youngs 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	
Semster : IV		
Course Name	**MINI PROJECT**	
Course Code	**BTCVM410**	

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to :
CO 1	Apply newly learned skills in the technical field chosen for project development.	
CO 2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.	
CO 3	Replicate, enhance and refine technical aspects for engineering projects	
CO 4	Develop technological initiatives as an individual or as a team.	
Semster : IV		
12 **Course Name**		**Seminar on Topic of Field Visit to works involving Superstructure Construction**
Course Code		**BTCVF411**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Establish the motive behind any topic of interest and create a technical presentation's methodology.	
CO 2	Comprehend concept of Superstructure Construction	
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.	
Semster : V		
1 **Course Name**		**Design of Steel Structures**
Course Code		**BTCVC 501**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
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	Illustrate provisions in relevant BIS Codes.	
CO 5	Constructive development in the sector of Analysis and Design of Steel Structures.	
Semster : V		
2 **Course Name**		**Structural Mechanics-II**
Course Code		**BTCVC 502**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
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 stiffnes method.	
CO 5	Explain the principles and concepts related to the finite element methods	
Semster : V		
3 **Course Name**	**Soil Mechanics**	
Course Code	**BTCVC503**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to:**
CO 1	Classify different soil properties and behaviour.	
CO 2	Summarize stresses in soil, permeability and seepage aspects.	
CO 3	Develop ability to take up soil design of different types of foundation.	
CO 4	Identify the strength of soil.	
CO 5	Explain different tests of soil.	
Semster : V		
4 **Course Name**	**Environmental Engineering**	
Course Code	**BTCVC 504**	
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.	
Semster : V		
5 **Course Name**	**Transportation Engineering**	
Course Code	**BTCVC 505**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Comprehend various types of transportation systems	
CO 2	Demonstrate geometric designs & different materials used in highway.	
CO 3	Relate Traffic engineering concepts	
CO 4	Develop method to be used for Pavement designs	
CO 5	Interpret others modes of transports & there Advantages & disadvantages	
Semster : V		
6 **Course Name**	**Business Communication & Presentation Skills**	
Course Code	**BTCVE506D**	

Course Outcome No	Course Outcome Statement	By the end of the course, student will be able to:
CO 1	Inculcate basics of business communication skills & relevant tools.	
CO 2	Explain 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	Demonstrate the use of basic and advanced business communication skills.	
	Semster : V	
7 **Course Name**		**Essence of Indian Traditional Knowledge**
Course Code		**BTHM507**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Explain the concept of Ancient various Education System in India	
CO 2	Outline the Indian Linguistic Tradition, Yoga & Holistic Health care.	
CO 3	Explain Philosophical Traditions in ancient India with respect to todays life.	
CO 4	Glance of ancient structural Indian science and technology.	
CO 5	Evaluates the case studies of transportation and environmental systems of ancient India.	
	Semster : V	
8 **Course Name**		**Soil Mechanics Lab**
Course Code		**(BTCVC508)**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Interpret basic properties of soil formation and structure.	
CO 2	Classify the index properties of soils.	
CO 3	Analyze the properties and factors of permeability.	
CO 4	Analyze the effective stress and seepage through soil.	
CO 5	Demonstrate the properties of flow net and it's uses.	
	Semster : V	
9 **Course Name**		**Environmental Engineering lab**
Course Code		**BTCVL509**
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	Prepare basic process designs of water and wastewater treatment plants.	
CO 3	Determine the amount of pollutants present in the air, water, and wastewater	

	CO 4	Estimate the level of water and wastewater treatment that is necessary.	
	CO 5	Evaluate the microorganism's growth rate and survival conditions.	
	Semster : V		
10	**Course Name**	**Transportation Engineering Laboratory**	
	Course Code	**BTCVL510**	
	Course Outcome No	**Course Outcome Statement**	**By the end of the practial course, students will be able to:**
	CO 1	Perform tests on various road construction materials	
	CO 2	Demonstration of marshall test.	
	CO 3	Analyze different construction equipments used in constructions	
	CO 4	Comprehend various types roads with sections.	
	CO 5	Prepare basic process of Traffic studies and their calculations.	
	Semster : V		
11	**Course Name**	**Seminar on Topic of Field Visit to works related to Building Services**	
	Course Code	**BTCVS511**	
	Course Outcome No	**Course Outcome Statement**	**By the end of this course, students will be able to:**
	CO 1	Comprehend various Building Services	
	CO 2	Learn the Electrification planinng and execution.	
	CO 3	Learn the Plumbing system and execution.	
	CO 4	Learn the Furniture layout.	
	Semster : VI		
1	**Course Name**	**Design of Concrete Structures I**	
	Course Code	**BTCVC601**	
	Course Outcome No	**Course Outcome Statement**	**By the end of this course, students will be able to:**
	CO 1	Illustrate to the various design philosophies used for design of reinforced concrete.	
	CO 2	Analyze and design the reinforced concrete Slabs by working stess method.	
	CO 3	Analyze and design the reinforced concrete Beams by limit state and working stress method.	
	CO 4	Analyze and design the reinforced concrete columns by working stress method.	
	CO 5	Interpret Shear and Bond. Design of Shear reinforcement by limit state.	
	Semster : VI		
2	**Course Name**	**Foundation engg.**	
	Course Code	**BTCVC602**	

Course Outcome No	Course Outcome Statement	By the end of the course, students will be able to :
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.	
Semster : VI		
3 **Course Name**		**Concrete Technology**
Course Code		**BTCVC603**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
CO 1	Demostrate 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.	
Semster : VI		
4 **Course Name**		**Project Management**
Course Code		**BTCVC604**
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.	
Semster : VI		
5 **Course Name**		**Advanced Soil Mechanics**
Course Code		**BTCVE 605E**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Interpret the behavior of soil based on its particle size and mineral contents	
CO 2	Explain the Earth work equipments.	
CO 3	Illustrate the soil reinforcement mechanisms s	

CO 4	Identify the necessity of ground improvement and potential of a ground for improvement	
CO 5	Explain the grouting and injection methods.	
Semster : VI		
6 **Course Name**		**Building Planning and Design**
Course Code		**BTCVC606**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Make use of skills to plan buildings by considering various principles of planning and bye laws of governing body	
CO 2	Comprehend various utility requirements in buildings	
CO 3	Choose a way of traditional contruction process & plumbing system,electrification used in construction.	
CO 4	Outline knowledge of ventilation & thermal insulations.	
CO 5	Contrast the concept of acoustics	
Semster : VI		
7 **Course Name**		**Concrete Technology Lab**
Course Code		**BTCVL607**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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	
Semster : VI		
8 **Course Name**		**Building Planning, Design and Drawing Laboratory**
Course Code		**BTCVL608**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Make use of skills to plan buildings by considering various principles of planning and bye laws of governing body	
CO 2	Comprehend various utility requirements in buildings	
CO 3	Choose a way of traditional contruction process & plumbing system,electrification used in construction.	
CO 4	Outline knowledge of ventilation & thermal insulations.	
CO 5	Contrast the concept of acoustics	
Semster : VI		
9 **Course Name**		**Mini Project**
Course Code		**BTCVM609**

	Course Outcome No	Course Outcome Statement	By the end of the course, the students will be able to:
	CO 1	Study 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	Prepare a detailed report on the application of emerging technologies in the selected industry.	
	CO 5	Life Long Learning& Develop leadership skills	
	Semster : VI		
10	**Course Name**	**Seminar on Topic of Field Visit Road Construction**	
	Course Code	**BTCVS610**	
	Course Outcome No	**Course Outcome Statement**	**By the end of the course, students will be able to :**
	CO 1	Establish the motive behind any topic of interest and create a technical presentation's methodology.	
	CO 2	Comprehend concept of geometrical design Road Construction.	
	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.	
	Semster : VII		
1	**Course Name**	**Design of concrete Structure - II**	
	Course Code	**BTCVC 701**	
	Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
	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.	
	Semster : VII		
2	**Course Name**	**Infrastructure Enguneering**	
	Course Code	**BTCVC702**	
	Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
	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	
Semster : VII		
3 **Course Name**	**Water Resources Engineering**	
Course Code	**BTCVC703**	
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 Reserviors, 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.	
Semster : VII		
4 **Course Name**	**Professional Practices**	
Course Code	**BTCVC704**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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.	
Semster : VII		
5 **Course Name**	**Construction Techniques.**	
Course Code	**BTCVE 705A**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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.	
Semster : VII		
6 **Course Name**	**Town and Urban planning**	

Course Code		**BTCVOE706E**
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 acquition acts.	
CO 5	Interpret the various planning methodology	
Semster : VII		
7 **Course Name**		**Design and Drawing of RC and Steel Structure.**
Course Code		**(BTCVL707)**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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 Fooing 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.	
Semster : VII		
8 **Course Name**		**Professional Practices**
Course Code		**BTCVL708**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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.	
Semster : VII		
10 **Course Name**		**Seminar**
Course Code		**BTCVS710**
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Determine the motivation behind any interesting issue and develop the approach for a technical presentation.	

CO 2	Analyze and comprehend information about 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.	
Semster : VII		
11 **Course Name**	**Project Stage-I**	
Course Code	**BTCVP711**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
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.	
Semster : VIII		
1 **Course Name**	**Maintenance and Repair of Concrete Structures**	
Course Code	**BTCVSS801D**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Illustrate the corrosion mechanisms of concrete structures	
CO 2	Interpret Deterioration of cementitious systems	
CO 3	Explain Non-destructive tests (NDT)	
CO 4	Identify the Surface repairs in concrete structures	
CO 5	Demonstrate Strengthening and stabilization of concrete structures	
Semster : VIII		
2 **Course Name**	**Mechanical Characterization of Bituminous Materials**	
Course Code	**BTCESS802D**	
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Identify the bituminous pavements and Overview of distresses	
CO 2	Determine functions for viscoelastic materials	
CO 3	Identify the refinery processing of bitumen grading system for bitumen	
CO 4	Explain the Performance characterization of modified bitumen	
CO 5	Demonstrate the simulation of the bituminous mixture.	
Semster : VIII		
3 **Course Name**	**Project Stage-II**	

Course Code		BTCEP803
Course Outcome No	**Course Outcome Statement**	**By the end of the course, the students will be able to:**
CO 1	Explain the 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	Develop documentation and presenting abilities.	