



Lyallpur Khalsa College Technical Campus

Cantt. Road, Near Bus Stand, Jalandhar

(Approved by AICTE, Affiliated to IKG-PTU & PSBTE & IT)

DEPARTMENT OF CIVIL ENGINEERING

Program Specific Outcome

PSO1: Investigation:

To use investigation techniques for coming to a solution for a particular problem like field investigations, experiment analysis, load calculations etc.

PSO2: Designing:

The ability to design the different structures related to construction using Indian standards.

PSO3: Project Management:

The ability to execute and manage the projects in a systematic manner using quantitative techniques and calculating the duration of completion of any activity/event related to the construction.

2017-2018 Batch Scheme

Third Semester

Contact Hours: 33 Hrs.

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|-------------|--|-----------------|----|----|--------------------|----------|-------------|---------|
| | | L | T | P | Internal | External | | |
| BTAM-301 | Engineering Mathematics-III* | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-301 | Fluid Mechanics-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-302 | Rock Mechanics & Engg .Geology | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-303 | Strength of Materials | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-304 | Surveying | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-305 | Building Materials & Construction | 4 | 0 | - | 40 | 60 | 100 | 4 |
| BTCE-306 | Fluid Mechanics-I Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-307 | Strength of Materials Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-308 | Surveying Lab | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-309 | Workshop Training of 4 weeks duration after 2 nd semester Carpentry, Electrical, Plumbing, Masonry, CAD | | | | 30 | 20 | 50 | 1 |
| Total | | 20 | 06 | 07 | 360 | 440 | 800 | 31 |

* This subject shall be taught by the faculty of Applied Science Department

Fourth Semester**Contact Hours: 30 Hrs.**

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|---|-----------------|-----------|-----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-401 | Geomatics Engineering | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-402 | Construction Machinery & Works Management | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-403 | Design of Concrete Structures-I | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-404 | Fluid Mechanics-II | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-405 | Irrigation Engineering-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-406 | Structural Analysis-I | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-407 | Concrete Technology Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-408 | Structural Analysis Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-409 | General Fitness | | | | 100 | - | 100 | |
| Total | | 19 | 07 | 04 | 400 | 400 | 800 | 28 |

Fifth Semester**Contact Hours: 30 Hrs.**

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|---|-----------------|-----------|-----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-501 | Design of Steel Structures-I | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-502 | Geotechnical Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-503 | Structural Analysis-II | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-504 | Transportation Engineering-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-505 | Environmental Engineering –I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-506 | Transportation Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-507 | Geotechnical Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-508 | Computer Aided Structural Drawing I | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-509 | Survey Camp of 04 weeks duration after 4 th Semester | | | | 100 | 50 | 150 | 2 |
| Total | | 17 | 06 | 07 | 390 | 410 | 800 | 29 |

Sixth Semester**Contact Hours: 34 Hrs**

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|--|-----------------|-----------|----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-601 | Design of Concrete Structures-II | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-602 | Elements of Earthquake Engineering | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-603 | Foundation Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-604 | Numerical Methods in Civil Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-605 | Professional Practice | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-606 | Environment Engineering –II | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-607 | Environmental Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-608 | Computer Aided Structural Drawing II | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-609 | General Fitness | | | | 100 | - | 100 | |
| Total | | 21 | 08 | 5 | 400 | 400 | 800 | 32 |

2018-2022 Batch Scheme

Third Semester

Contact Hours: 33 Hrs.

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|--|-----------------|-----------|-----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTAM-301 | Engineering Mathematics-III* | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-301 | Fluid Mechanics-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-302 | Rock Mechanics & Engg .Geology | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-303 | Strength of Materials | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-304 | Surveying | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-305 | Building Materials & Construction | 4 | 0 | - | 40 | 60 | 100 | 4 |
| BTCE-306 | Fluid Mechanics-I Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-307 | Strength of Materials Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-308 | Surveying Lab | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-309 | Workshop Training of 4 weeks duration after 2 nd semester Carpentry, Electrical, Plumbing, Masonry, CAD | | | | 30 | 20 | 50 | 1 |
| Total | | 20 | 06 | 07 | 360 | 440 | 800 | 31 |

* This subject shall be taught by the faculty of Applied Science Department

Fourth Semester

Contact Hours: 30 Hrs.

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|---|-----------------|-----------|-----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-401 | Geomatics Engineering | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-402 | Construction Machinery & Works Management | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-403 | Design of Concrete Structures-I | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-404 | Fluid Mechanics-II | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-405 | Irrigation Engineering-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-406 | Structural Analysis-I | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-407 | Concrete Technology Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-408 | Structural Analysis Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-409 | General Fitness | | | | 100 | - | 100 | |
| Total | | 19 | 07 | 04 | 400 | 400 | 800 | 28 |

Fifth Semester

Contact Hours: 30 Hrs.

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|---|-----------------|-----------|-----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-501 | Design of Steel Structures-I | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-502 | Geotechnical Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-503 | Structural Analysis-II | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-504 | Transportation Engineering-I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-505 | Environmental Engineering –I | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-506 | Transportation Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-507 | Geotechnical Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-508 | Computer Aided Structural Drawing I | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-509 | Survey Camp of 04 weeks duration after 4 th Semester | | | | 100 | 50 | 150 | 2 |
| Total | | 17 | 06 | 07 | 390 | 410 | 800 | 29 |

Sixth Semester**Contact Hours: 34 Hrs**

| Course Code | Course Name | Load Allocation | | | Marks Distribution | | Total Marks | Credits |
|--------------|--|-----------------|-----------|----------|--------------------|------------|-------------|-----------|
| | | L | T | P | Internal | External | | |
| BTCE-601 | Design of Concrete Structures-II | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-602 | Elements of Earthquake Engineering | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-603 | Foundation Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-604 | Numerical Methods in Civil Engineering | 4 | 1 | - | 40 | 60 | 100 | 5 |
| BTCE-605 | Professional Practice | 3 | 2 | - | 40 | 60 | 100 | 5 |
| BTCE-606 | Environment Engineering –II | 3 | 1 | - | 40 | 60 | 100 | 4 |
| BTCE-607 | Environmental Engineering Lab | - | - | 2 | 30 | 20 | 50 | 1 |
| BTCE-608 | Computer Aided Structural Drawing II | - | - | 3 | 30 | 20 | 50 | 2 |
| BTCE-609 | General Fitness | | | | 100 | - | 100 | |
| Total | | 21 | 08 | 5 | 400 | 400 | 800 | 32 |

Course Name: M-III (BTAM-301)**Session: 2017-18; 2018-19**

| Course Outcomes | |
|---|--|
| After the course completion, students will be able to: | |
| BTAM-301.1 | Derive Fourier series for different types of functions and will be able to use its concepts to various engineering problems. |
| BTAM-301.2 | Find solutions of Ordinary and partial differential equations of all kinds. |
| BTAM-301.3 | Demonstrate the knowledge of Laplace transforms in various engineering problems. |
| BTAM-301.4 | Solve differentiation and integration of functions of a complex variable; apply Cauchy's-Riemann equations that are used in various problems related to engineering. |
| BTAM-301.5 | Use the concepts related to Power Series. |

Course Name: FM I (BTCE 301)**Session: 2017-18; 2018-19**

| Course Outcomes | |
|---|--|
| After the course completion, students will be able to: | |
| BTCE-301.1 | Formulate equation of flow through different media/obstructions for a laminar and turbulent flow |
| BTCE-301.2 | Apply the principles of conservation of energy and momentum in the flow studies in open channels and simple pipe network |
| BTCE-301.3 | Design pipe network and open channels for passing a given discharge |
| BTCE-301.4 | Evaluate the effect of channel shapes on the discharge parameters |
| BTCE-301.5 | Understand and apply the theory of hydraulic jumps and surges |

Course Name: RMEG (BTCE-302)

Session: 2017-18; 2018-19

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTCE-302-1 | Identify the problems associated with underground excavations |
| BTCE-302-2 | Classify the rock mass using the reference data |
| BTCE-302-3 | Understand the failure criteria of rock |
| BTCE-302-4 | Determine in-situ stresses from field test data |

Course Name: SOM (BTCE 303)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 303-1 | Understand the concept of static equilibrium, deformations, and material constitutive behavior |
| BTCE 303-2 | Describe the concepts of stress, strain and elastic behavior of materials including Hooke's law relationships to analyze structural members subjected to tension, compression and torsion. |
| BTCE 303-3 | Apply the concept of Mohr's circle in the stress/strain calculations. |
| BTCE 303-4 | Develop SFD and BMD for different type of beams subjected to different types of loads |
| BTCE 303-5 | Plot elastic curves for beams undergoing displacements under different loadings |
| BTCE 303-6 | Understand the behavior of columns and struts under axial loading. |

Course Name: SURVEYING (BTCE 304)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 304-1 | Understand the concept, various methods and techniques of surveying |
| BTCE 304-2 | Compute angles, distances and levels for given area |
| BTCE 304-3 | Apply the concept of tachometry survey in difficult and hilly terrain. |
| BTCE 304-4 | Select appropriate instruments for data collection and survey purpose |

Course Name: BMC (BTCE 305)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 305-1 | Appraisal about the role of materials in civil engineering |
| BTCE 305-2 | To Provides a broad understanding of the composition, microstructure, and engineering behavior of various materials used in civil engineering applications. |
| BTCE 305-3 | To Introduces various modifications possibilities in construction materials. |

| | |
|-------------------|---|
| BTCE 305-4 | Various applications of construction materials. |
|-------------------|---|

Course Name: FM LAB (BTCE 306)

Session: 2017-18; 2018-19

| | |
|---|---|
| Course Outcomes | |
| After the course completion, students will be able to: | |
| C306.1 | To practically understand about the applications of Bernoulli's equation. |
| C306.2 | To understand the stability conditions of floating bodies. |
| C306.3 | To understand about the energy losses in pipes and channels. |

Course Name: SOM Lab (BTCE 307)

Year: 2019-20 ;2017-18; 2018-19

| | |
|--|---|
| Course Outcomes: After the course Students will be able to :- | |
| BTCE 307-1 | Understand the importance of physical properties of steel. |
| BTCE 307-2 | Identify and comprehend code provisions for testing different properties of steel |
| BTCE 307-3 | Develop stress-strain curve for axial compression, axial tension and shear. |
| BTCE 307-4 | Assess hardness and impact strength of steel |
| BTCE 307-5 | Assess flexural strength of a given material |
| BTCE 307-6 | Evaluate fatigue and impact strength of steel. |

Course Name: SURVEYING LAB (BTCE 308)

Year: 2019-20; 2017-18; 2018-19

| | |
|--|---|
| Course Outcomes: After the course Students will be able to :- | |
| BTCE 308-1 | Assess horizontal & vertical angles by Theodolite. |
| BTCE 308-2 | Survey the area using different methods of plane tabling and compass survey and to adjust the compass traverse graphically. |
| BTCE 308-3 | Compute the reduce levels using various methods of leveling. |
| BTCE 308-4 | Predict the location of any point horizontally and vertically using Tachometry |
| BTCE 308-5 | Setting out curves in the field. |
| BTCE 308-6 | Use electronic survey instruments. |

Course Name: GEOMATICS (BTCE 401)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 401-1 | Understand digital applications of surveying |
| BTCE 401-2 | Select appropriate instruments for data collection and survey purpose |
| BTCE 401-3 | Analyze and retrieve the information from remotely sensed data and interpret the data for survey. |
| BTCE 401-4 | Understand the concepts related to GIS and GPS and analyze the geographical data. |

Course Name: CMWM (BTCE 402)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 402-1 | Student shall be able to Plan Bar Chart, CPM, chart, PERT chart material requirement schedule, Manpower schedule, Machinery schedule. |
| BTCE 402-2 | Student shall be able to carry out manpower resources leveling and smoothing. |
| BTCE 402-3 | Overview of Construction Management and Present status of Construction Industry. |
| BTCE 402-4 | Students shall be prepare Project management reporting documents. |
| BTCE 402-5 | Students shall be able to frame a labour law for their project site. |
| BTCE 402-6 | Apply various material and equipment management techniques in a project. |

Course Name: DCS I (BTCE 403)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 403-1 | Student would be able to identify the quality control tests on concrete making materials |
| BTCE 403-2 | Students would be able to understand the behaviour and the durability aspects of the concrete under different loading and exposure conditions |
| BTCE 403-3 | Students will be able to design the concrete mixes as per various mix techniques. |
| BTCE 403-4 | Students will be able to compare the fundamental concepts of different design philosophies available for RC elements. |
| BTCE 403-5 | Students will execute the solution using a logic and structured approach based on Limit State Method and IS code provisions for various RC elements, such as beams and slabs |

Course Name: FM II (BTCE 404)

Session:; 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 404-1 | Understand the applications of laminar flow. |
| BTCE 404-2 | Understand the applications of turbulence and turbulent flows in dams and other water works. |
| BTCE 404-3 | Apply the continuity, momentum and energy principles and design the pipelines used for water supply or sewage under different situation. |
| BTCE 404-4 | Calculate drag force exerted by fluid on the body of varying shapes and able to minimize them. |
| BTCE 404-5 | Design and addressing problems in open channel (lined/ unlined) of different shapes and size optimally as per site condition. |

Course Name: Irrigation Engineering I (BTCE 405)

Session: 2017-18; 2018-19

| Course Outcomes: | |
|-------------------------|---|
| BTCE 405-1 | To make the students familiar with the principle objectives and techniques of the irrigation and appropriate method of water application in varied situations. |
| BTCE 405-2 | To train the students and develop basic requirements of irrigation and various irrigation techniques, requirements of the crops basic understanding of soil water plant relationship. |
| BTCE 405-3 | To understand the students about the distribution systems for canal irrigation and the basics of design of unlined and lined irrigation canals design. |
| BTCE 405-4 | To make the students aware about the losses in canals causes of water logging and drainage concept associated with it. |
| BTCE 405-5 | To understand the students about the concepts of movement of ground water beneath the earth and various theories associated with it. |
| BTCE 405-6 | To make the students familiar with basic components of river Training works. |

Course Name: SA I (BTCE 406)

Session: 2017-18; 2018-19

| COURSE OUTCOMES | |
|------------------------|---|
| BTCE 406-1 | The students will understand the concept of structural systems, loads, supports and displacements. |
| BTCE 406-2 | The student will be able to analyze different types of statically determinate structures including cables, beams, arches, frames and trusses. |
| BTCE 406-3 | The student will be able to identify and apply a suitable analysis technique to find out the redundancy of different structures. |
| BTCE 406-4 | Students will be able to Assess the effect of rolling loads, support displacements and temperatures on response of statically determinate structures. |
| BTCE 406-5 | Students will develop and use the concept of influence line diagram for calculating maximum values of different structural quantities in a statically determinate structure, like |

| | |
|--|--------------------------|
| | BM, SF and displacement. |
|--|--------------------------|

Course Name: CT LAB (BTCE 407)

Session: 2017-18; 2018-19

| COURSE OUTCOMES | |
|------------------------|---|
| BTCE 407-1 | Identify Quality Control tests on concrete making materials |
| BTCE 407-2 | Understand the behavior of fresh and hardened concrete |
| BTCE 407-3 | Design concrete mixes as per IS codes |
| BTCE 407-4 | Understand the durability requirements of concrete |
| BTCE 407-5 | Understand the need for special concretes |

Course Name: SA LAB (BTCE 408)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 408-1 | Deflection of a simply supported beam and verification of Clark-Maxwell's theorem. |
| BTCE 408-2 | Flexural Rigidity of a given beam. |
| BTCE 408-3 | Deflection of a fixed beam and influence line for reactions. |
| BTCE 408-4 | Deflection studies for a overhang beam and influence line for reactions. |
| BTCE 408-5 | Structural Drawings of Reinforced Concrete Elements such as Beams, Slabs. |

Course Name: DSS I (BTCE 501)

Session: 2017-18; 2018-19

| Course Outcomes | |
|------------------------|---|
| BTCE-501-1 | Student would be able to learn the basic elements of a steel structure |
| BTCE-501-2 | Students would be able to learn the fundamentals of structural steel fasteners like rivets, bolts and welds. |
| BTCE-501-3 | Students will be able to design basic elements of steel structure like tension members, compression members, beams and beam-columns. |
| BTCE-501-4 | Students will be Able to design column splices and bases. |
| BTCE-501-5 | Students will execute the solution using a logic and structured approach based on Limit State Method and IS code provisions for various steel elements. |

Course Name: GE (BTCE-502)

Session: 2017-18; 2018-19

| Course Outcomes | |
|---|--|
| After the course completion, students will be able to: | |
| BTCE-502-1 | Comprehend the various geotechnical field challenges and understand their fundamental, index and engineering properties and then use |

| | |
|-------------------|---|
| | (apply) the soil as an engineering material. |
| BTCE-502-2 | Investigate and write the laboratory reports for soil design properties and parameters by apply the concept of permeability, total and effective stress approaches in soil strength determination |
| BTCE-502-3 | Apply the various specifications of compaction of soils in the construction of highways and earthen dams. |
| BTCE-502-4 | Able to apply the knowledge of consolidation, soil deformation parameters, and calculate settlement magnitude and rate of settlement. |
| BTCE-502-5 | Design the embankment slopes and check the stability of finite slopes. |

Course Name: SA II (BTCE-503)

Session: 2017-18; 2018-19

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-503-1 | To understand and determine the determinacy of different types of structures |
| BTCE-503-2 | To understand and determine the indeterminacy of different types of structures. |
| BTCE-503-3 | To calculate forces and moments in indeterminate structures due to static as well as moving loads. |
| BTCE-503-4 | To analyze influence line for bar forces in the statically indeterminate trusses, beams and frames. |

Course Name: TE-I (BTCE-504)

Session: 2017-18; 2018-19

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-504-1 | Design Highway Geometric & Cross Section Elements of roads. |
| BTCE-504-2 | Able to apply the knowledge of Earthen/Gravel Road & Water Bound Macadam. |
| BTCE-504-3 | Student understands the Road User Characteristics & Driver Characteristics. |
| BTCE-504-4 | Design the Road networks according to Volume Studies, Speed Studies, O-D Survey. |

Course Name: EE-I (BTCE-505)

Session: 2017-18; 2018-19

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
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| | |
|-------------------|---|
| BTCE-505-1 | Understand design period for water supply schemes and population forecasting. |
| BTCE-505-2 | Learn about various water supply appurtenances and materials. |
| BTCE-505-3 | Understand about layout of water supply network. |
| BTCE-505-4 | Understand about the water treatment systems. |

Course Name: TE-Lab (BTCE-506)

Session: 2017-18; 2018-19

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-506-1 | Characterize the pavement materials as per the Indian Standard guidelines. |
| BTCE-506-2 | Evaluate the strength of subgrade soil by CBR test. |
| BTCE-506-3 | Conduct experiments to evaluate aggregate properties. |
| BTCE-506-4 | Determine properties of bitumen material and mixes |
| BTCE-506-5 | Create a well-organized report and present the results appropriately |

Course Name: GE-Lab (BTCE-507)

Session: 2017-18; 2018-19

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-507-1 | Comprehend the various geotechnical field challenges and understand their fundamental, index and engineering properties and then use (apply) the soil as an engineering material. |
| BTCE-507-2 | Investigate and write the laboratory reports for soil design properties and parameters by apply the concept of permeability. |
| BTCE-507-3 | Write the laboratory reports for total and effective stress approaches in soil strength determination. |

Course Name: CASD-Lab (BTCE-508)

Session: 2017-18; 2018-19

| | |
|------------------------|--|
| COURSE OUTCOMES | |
| BTCE-508-1 | Students would be able to demonstrate the knowledge regarding the design of , slabs, staircase, footings, compression members, retaining wall etc. |

| | |
|-------------------|---|
| BTCE-508-2 | Students would be able to draw various structural drawings using AUTOCADD |
| BTCE-508-3 | Students would be able to understand and will be able to read various structural drawings |

Course Name: DCS II (BTCE-601)

Session: 2017-18; 2018-19

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-601-1 | Understand design of staircase; footings |
| BTCE-601-2 | Understand design of beams and columns in various loading conditions |
| BTCE-601-3 | Understand design of domes |
| BTCE-601-4 | Understand design of Retaining structures including earth and water structures. |

Course Name: EEE (BTCE-602)

Session: 2017-18; 2018-19

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE-602-1 | Appreciate the role of earthquake forces in structural design of building. |
| BTCE-602-2 | Apply various codal provisions related to seismic design of buildings. |
| BTCE-602-3 | Acquire new basic knowledge in earthquake engineering |

Course Name: FE (BTCE603)

Year of study: 2019-2020

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE603-1 | Evaluate the relative merits and demerits of various soil investigation techniques to understand the characteristics of subsoil for the design of foundations. |
| BTCE603-2 | Analyze the settlement of substructures for cohesive and non-cohesive soils. |
| BTCE603-3 | Predict the soil failure by understanding its criteria. |
| BTCE603-4 | Apply the knowledge of soil bearing capacity for the design of shallow foundation. |

| | |
|------------------|--|
| BTCE603-5 | Demonstrate the knowledge of earth pressure for the lateral stability of retaining wall and well foundations |
| BTCE603-6 | Understand the concept of deep foundation (pile foundation and well foundation). |

Course Name: NMCE (BTCE-604)

Year of study: 2017-2018

| Course Outcomes | |
|---|---|
| After the course completion, students will be able to: | |
| BTCE604-1 | Demonstrate knowledge of a range of applications of analytical and numerical methods. |
| BTCE604-2 | Understand how to apply numerical methods to solve the mathematical models. |
| BTCE604-3 | Solve different type of initial and boundary value problems. |
| BTCE604-4 | Apply Newmark's method in various engineering problems. |
| BTCE604-5 | Use various statistical methods to make analysis of data. |

Course Name: PP (BTCE-605)

Session: 2017-18; 2018-19

| Course Outcomes | |
|------------------------|---|
| BTCE605-1 | Understand about building estimation methods. |
| BTCE605-2 | Understand about analysis of rates of construction. |
| BTCE605-3 | Understand about types of contracts and other legal requirements. |
| BTCE605-4 | Understand about accounts related to construction. |

Course Name: EE II (BTCE-606)

Session: 2017-18; 2018-19

| Course Outcomes | |
|------------------------|---|
| BTCE606-1 | Demonstrate a firm understanding of various sewerage systems and their suitability |
| BTCE606-2 | Evaluate the waste water characteristics to determine the degree of treatment required. |
| BTCE606-3 | Explain the physical, chemical and biological techniques of wastewater treatment. |
| BTCE606-4 | Compare the applicability of treatment technologies under different conditions. |
| BTCE606-5 | Ability to make decisions regarding the treatment plant site selection, operation and maintenance and the need of advanced treatment. |

Course Name: EE LAB (BTCE-607)

Session: 2017-18; 2018-19

| Course Outcomes | |
|------------------------|--|
| BTCE607-1 | Understand for determination chemical characteristics of wastewater. |
| BTCE607-2 | Understand for determination physical characteristics of wastewater. |

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| BTCE607-3 | Understand for determination biological characteristics of wastewater. |
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Course Name: CASD-II Lab (BTCE-608)

Session: 2017-18; 2018-19

| COURSE OUTCOMES | |
|------------------------|--|
| BTCE-608-1 | Students would be able to demonstrate the knowledge regarding the design of steel or concrete structures |
| BTCE-608-2 | Students would be able to draw various structural drawings using AUTOCADD |
| BTCE-608-3 | Students would be able to understand and will be able to read various structural drawings |

Course Name: DP&P (BTCE 405-18)

Session: 2017-18; 2018-19

| Course Outcomes: | |
|-------------------------|---|
| BTCE 405.18-1 | Identify various types of disasters, their causes, effects & mitigation measures. |
| BTCE 405.18-2 | Demonstrate the understanding of various phases of disaster management cycle and create vulnerability and risk maps. |
| BTCE 405.18-3 | Understand the use of emergency management system to tackle the problems. |
| BTCE 405.18-4 | Discuss the role of media, various agencies and organizations for effective disaster management. |
| BTCE 405.18-5 | Design early warning system and understand the utilization of advanced technologies in disaster management. |
| BTCE 405.18-6 | Compare different models for disaster management and plan & design of infrastructure for effective disaster management. |

Course Name: Irrigation Engineering II (BTCE 803) Year: 2017-18, 2018-19, 2019-20, and 2020-21

| Course Outcomes: | |
|-------------------------|--|
| BTCE 803-1 | To understand the components function design considerations of diversion head works. |
| BTCE 803-2 | To understand the various theories associated with seepage and their design considerations. |
| BTCE 803-3 | To make the students competent to design the weir considering various design factors. |
| BTCE 803-4 | To understand the need of hydraulic jump and hydraulic design related to it. |
| BTCE 803-5 | To make students aware about the Necessity function and design of canal regulators and various types of canal falls. |

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|------------|--|
| BTCE 803-6 | To understand the various types of cross drainage works and their location size as per the site. |
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Course Name: TE-II (BTCE 804)

Year of study: 2019-2020

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE 804-1 | Understand the importance of railway and airport infrastructure planning and design. |
| BTCE 804-2 | Identify the functions of different component of railway track. |
| BTCE 804-3 | Apply existing technology to design, construction and maintenance of railway track |
| BTCE 804-4 | Apprehend the advanced international technology being used in the field of railway engineering. |
| BTCE 804-5 | Outline the importance of Airport Infrastructure planning and design. |
| BTCE 804-6 | Evaluate the major issues and problems of current interest to airport engineering. |

Course Name: GIT (BTCE810)

Year of study: 2018-2019

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|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCE810-1 | Will gain competence in properly devising alternative solutions to difficult and earth construction problems and in evaluating their effectiveness before, during and after Construction. |
| BTCE810-2 | A study of the many different approaches to the ground modification broadens the mind of any engineer and inspires creativity and innovation in Geotechnical construction and related fields |

Course Name: SURVEYING AND GEOMATICS (BTCE 301-18)

Year: 2019-20

| | |
|--|--|
| Course Outcomes: After the course Students will be able to :- | |
| BTCE 301-1 | Understand the concept, various methods and techniques of surveying |
| BTCE 301-2 | Compute angles, distances and levels for given area purpose. |
| BTCE 301-3 | Apply the concept of tachometry survey in difficult and hilly terrain. |
| BTCE 301-4 | Select appropriate instruments for data collection and survey |

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|------------|---|
| BTCE 301-5 | Analyze and retrieve the information from remotely sensed data and interpret the data for survey. |
| BTCE 301-6 | Understand the concepts related to GIS and GPS and analyze the geographical data. |

Course Name: Solid Mechanics (BTCE 302-18)

Year:2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 302.18-1 | Understand the concept of static equilibrium, deformations, and material constitutive behavior |
| BTCE 302.18-2 | Describe the concepts of stress, strain and elastic behavior of materials including Hooke's law relationships to analyze structural members subjected to tension, compression and torsion. |
| BTCE 302.18-3 | Apply the concept of Mohr's circle in the stress/strain calculations. |
| BTCE 302.18-4 | Develop SFD and BMD for different type of beams subjected to different types of loads |
| BTCE 302.18-5 | Plot elastic curves for beams undergoing displacements under different loadings |
| BTCE 302.18-6 | Understand the behavior of columns and struts under axial loading. |

| Course Name: FM I(BTCE 303-18) | | Year of study: 2018-2019 |
|---|--|---------------------------------|
| Course Outcomes | | |
| After the course completion, students will be able to: | | |
| BTCE-303-18-1 | Formulate equation of flow through different media/obstructions for a laminar and turbulent flow. | |
| BTCE-303-18-2 | Apply the principles of conservation of energy and momentum in the flow studies in open channels and simple pipe network | |
| BTCE-303-18-3 | Design pipe network and open channels for passing a given discharge | |
| BTCE-303-18-4 | Evaluate the effect of channel shapes on the discharge parameters | |
| BTCE-303-18-5 | Understand and apply the theory of hydraulic jumps and surges | |

Course Name: M-III (BTAM-301)

Year of study: 2018-2019

| Course Outcomes | |
|---|---|
| After the course completion, students will be able to: | |
| BTAM-301.18-1 | Understand the basic results on vector function, their properties and fields so as to apply them for solving problems of engineering. |
| BTAM-301.18-2 | Find length, area and volume using integral calculus that is an important application in engineering. |
| BTAM-301.18-3 | Solve some real problems in engineering using Gauss Divergence and Stokes' theorem. |
| BTAM-301.18-4 | To formulate Laplace transform of functions and its applications to solve differential equations that form real life problems in engineering. |

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|----------------------|--|
| BTAM-301.18-5 | To formulate Fourier Series, its properties and its applications to solve problems in engineering. |
|----------------------|--|

Course Name: BE&ACE (BTEC-305 18)

Year of study: 2018-2019

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTEC-305 18-1 | Understand construction of diodes and their rectifier applications. |
| BTEC-305 18-2 | Appreciate the construction and working bipolar junction transistors and MOSFETs. |
| BTEC-305 18-3 | Design Op-Amp IC based fundamental applications. |
| BTEC-305 18-4 | Comprehend working of basic elements of digital electronics and circuits. |

Course Name: CE&IG (HSMC 132-18)

Year of study: 2018-2019

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| HSMC 132-18-1 | Introduction to what constitutes Civil Engineering |
| HSMC 132-18-2 | Understanding the vast interfaces this field has with the society at large |
| HSMC 132-18-3 | Providing inspiration for doing creative and innovative work for the benefit of the society |
| HSMC 132-18-4 | Need to think innovatively to ensure Sustainability |
| HSMC 132-18-5 | Highlighting the depth of engagement possible within civil engineering and exploration of various possibilities of a career in this field |

Course Name: SURVEYING & GEOMATICS LAB (BTCE 306-18)

Year: 2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 306-18-1 | Assess horizontal & vertical angles by Theodolite. |
| BTCE 306-18-2 | Survey the area using different methods of plane tabling and compass survey and to adjust the compass traverse graphically. |
| BTCE 306-18-3 | Compute the reduce levels using various methods of leveling. |
| BTCE 306-18-4 | Predict the location of any point horizontally and vertically using Tachometry |
| BTCE 306-18-5 | Setting out curves in the field. |
| BTCE 306-18-6 | Use electronic survey instruments. |

Course Name: FM LAB (BTCE 307-18)

Year:2019-20

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTCE 307-18-1 | To practically understand about the applications of Bernoulli's equation. |
| BTCE 307-18-2 | To understand the stability conditions of floating bodies. |
| BTCE 307-18-3 | To understand about the energy losses in pipes and channels. |
| BTCE 307-18-4 | To understand about the hydraulic jump and its components. |

Course Name: Solid Mechanics Lab (BTCE 308-18)

Year: 2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 308.18-1 | Understand the importance of physical properties of steel. |
| BTCE 308.18-2 | Identify and comprehend code provisions for testing different properties of steel |
| BTCE 308.18-3 | Develop stress-strain curve for axial compression, axial tension and shear. |
| BTCE 308.18-4 | Assess hardness and impact strength of steel |
| BTCE 308.18-5 | Assess flexural strength of a given material |
| BTCE 308.18-6 | Evaluate fatigue and impact strength of steel. |

Course Name: CT (BTCE-401-18)

Year of study: 2020-2021

| Course Outcomes After the course completion, students will be able to: | |
|---|--|
| BTCE 401.18-1 | Understand the relevance of different properties of constituent materials on properties of concrete. |
| BTCE 401.18-2 | Understand the behavior and durability aspects of concrete under different loading and exposure conditions. |
| BTCE401.18-3 | Understand the issues involved in production and use of concrete and design of concrete mixes as per BIS specifications. |
| BTCE 401.18-4 | Understand various testing methods for concrete and their applicability. |
| BTCE 401.18-5 | Knowledge of special type of non-conventional concretes. |

Course Name: MT&E (BTCE-402-18)

Year of study: 2020-2021

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTCE 402.18-1 | Appraisal about the role of materials in civil engineering |
| BTCE 402.18-2 | Introduce common measurement instruments, equipments and devices to capture the material response under loading |
| BTCE402.18-3 | Exposure to a variety of established material testing procedures/techniques and the relevant codes of practice |
| BTCE 402.18-4 | Ability to write a technical laboratory report. |

Course Name: H&WRE (BTCE 403-18)**Year: 2019-20, 2020-21**

| Course Outcomes: After the course Students will be able to | |
|---|---|
| BTCE 403.18-1 | Understand the interaction among various processes in the hydrologic cycle. |
| BTCE 403.18-2 | Calculate the average annual rainfall of any area using the rain gauge data and inter-relations of various parameters as infiltration, evapotranspiration etc |
| BTCE 403.18-3 | Understand the various component of hydro graphs and able to estimate the run off. |
| BTCE 403.18-4 | Find the water requirement for different crops and able to proposed appropriate method of applying water. |
| BTCE 403.18-5 | Understand the distribution system of canal and various components of irrigation system.. |
| BTCE 403.18-6 | Classify dams and spillways, their problems and able to determine forces exerted by fluid on dams. |

Course Name: TE (BTCE-404-18)**Year of study: 2019-2020**

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTCE-404-18-1 | Understand the importance of railway and airport infrastructure planning and design. |
| BTCE-404-18-1 | Identify the functions of different component of railway track. |
| BTCE-404-18-1 | Apply existing technology to design, construction and maintenance of railway track |
| BTCE-404-18-1 | Apprehend the advanced international technology being used in the field of railway engineering. |
| BTCE-404-18-1 | Outline the importance of Airport Infrastructure planning and design. |
| BTCE-404-18-1 | Evaluate the major issues and problems of current interest to airport engineering. |

Course Name: DP&P (BTCE 405-18)**Year: 2020-21**

| Course Outcomes: | |
|-------------------------|--|
| BTCE 405.18-1 | Identify various types of disasters, their causes, effects & mitigation measures. |
| BTCE 405.18-2 | Demonstrate the understanding of various phases of disaster management cycle and create vulnerability and risk maps. |
| BTCE 405.18-3 | Understand the use of emergency management system to tackle the problems. |
| BTCE 405.18-4 | Discuss the role of media, various agencies and organisations for effective disaster management. |
| BTCE 405.18-5 | Design early warning system and understand the utilization of advanced technologies in disaster management. |

| | |
|---------------|---|
| BTCE 405.18-6 | Compare different models for disaster management and plan & design of infrastructure for effective disaster management. |
|---------------|---|

Course Name: CT LAB (BTCE 406-18)

Year: 2020-21

| Course Outcomes: | |
|-------------------------|---|
| BTCE 406.18-1 | Evaluate properties of building materials, such as cement and aggregates. |
| BTCE 406.18-2 | Conduct experiments and check the acceptance criteria (if any). |
| BTCE 406.18-3 | Design concrete mixes as per BIS provisions. |
| BTCE 406.18-4 | Analyze the properties of concrete in fresh and hardened state. |
| BTCE 406.18-5 | Create a well-organized document and present the results appropriately. |
| BTCE 406.18-6 | Understand and apply non-destructive testing (NDT) for evaluating concrete quality. |

Course Name: TE LAB (BTCE 407-18)

Year: 2020-21

| Course Outcomes: | |
|-------------------------|--|
| BTCE 407.18-1 | Characterize the pavement materials as per the Indian Standard guidelines. |
| BTCE 407.18-2 | Evaluate the strength of subgrade soil by CBR test. |
| BTCE 407.18-3 | Conduct experiments to evaluate aggregate properties. |
| BTCE 407.18-4 | Evaluate the pavement condition by rough meter and Benkelman beam test |
| BTCE 407.18-5 | Determine properties of bitumen material and mixes |

Course Name: ENGG GEOLOGY (BTCE 501-18)

Year: 2020-21

| Course Outcomes: | |
|-------------------------|--|
| BTCE 501.18-1 | The basic concepts of geological processes and their importance in civil Engineering |
| BTCE 501.18-2 | Identification of rocks and minerals and their characteristics |
| BTCE 501.18-3 | Significance of geological structures and processes in civil engineering projects |
| BTCE 501.18-4 | Site characterization and geologic considerations in construction |

Course Name: EEEEC (BTCE 502-18)

Year: 2020-21

| Course Outcomes: | |
|-------------------------|--|
| BTCE 502.18-1 | Appreciate the role of earthquake forces in structural design of building. |
| BTCE 502.18-2 | Apply various codal provisions related to seismic design of buildings. |
| BTCE 501.18-3 | Acquire new basic knowledge in earthquake engineering |

Course Name: CE&M (BTCE 503-18)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 503.18-1 | Student shall be able to Plan Bar Chart, CPM, chart, PERT chart material requirement schedule, Manpower schedule, Machinery schedule. |
| BTCE 503.18-2 | Student shall be able to carry out manpower resources leveling and smoothing. |
| BTCE 503.18-3 | Overview of Construction Management and Present status of Construction Industry. |
| BTCE 503.18-4 | Students shall be prepare Project management reporting documents. |
| BTCE 503.18-5 | Students shall be able to frame a labour law for their project site. |
| BTCE 503.18-6 | Apply various material and equipment management techniques in a project. |

Course Name: Environmental Engineering (BTCE 504-18)

Year: 2017-18, 2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 504.18-1 | To understand various terms used in water and wastewater treatment |
| BTCE 504.18-2 | To understand basics of Water supply and Sewerage system |
| BTCE 504.18-3 | To understand the various characteristics of waste water |
| BTCE 504.18-4 | To acquaint with different steps involved in primary, Secondary and Tertiary treatment of water. |
| BTCE 504.18-5 | To Know the basics to establish water Treatment Plants and Advanced Wastewater Treatment |

Course Name: Structural Engineering (BTCE 505-18)

Year: 2017-18, 2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE 505.18-1 | The students will be able to apply their knowledge of structural mechanics in addressing design problems of structural engineering |
| BTCE 505.18-2 | They will possess the skills to analyze and design concrete and steel structures |
| BTCE 505.18-3 | They will have knowledge of structural engineering |

Course Name: Geotechnical Engineering (BTCE 506-18)

Year: 2017-18, 2019-20

| Course Outcomes: After the course Students will be able to :- | |
|--|---|
| BTCE 506.18-1 | Comprehend the various geotechnical field challenges and understand their fundamental, index and engineering properties and then use (apply) the soil as an engineering material. |

| | |
|---------------|---|
| BTCE 506.18-2 | Investigate and write the laboratory reports for soil design properties and parameters by apply the concept of permeability, total and effective stress approaches in soil strength determination |
| BTCE 506.18-3 | Apply the various specifications of compaction of soils in the construction of highways and earthen dams. |
| BTCE 506.18-4 | Able to apply the knowledge of consolidation, soil deformation parameters, and calculate settlement magnitude and rate of settlement. |
| BTCE 506.18-5 | Design the embankment slopes and check the stability of finite slopes. |

Course Name: GE-Lab (BTCE-507-18)

Session: 2017-18; 2018-19

| Course Outcomes After the course completion, students will be able to: | |
|---|---|
| BTCE-507.18-1 | Comprehend the various geotechnical field challenges and understand their fundamental, index and engineering properties and then use (apply) the soil as an engineering material. |
| BTCE-507.18-2 | Investigate and write the laboratory reports for soil design properties and parameters by apply the concept of permeability. |
| BTCE-507.18-3 | Write the laboratory reports for total and effective stress approaches in soil strength determination. |

Course Name: EE LAB (BTCE-508.18)

Session: 2017-18; 2018-19

| Course Outcomes | |
|------------------------|--|
| BTCE508.18-1 | Understand for determination chemical characteristics of wastewater. |
| BTCE508.18-2 | Understand for determination physical characteristics of wastewater. |
| BTCE508.18-3 | Understand for determination biological characteristics of wastewater. |

Course Name: STRUCTURE LAB (BTCE 509-18)

Session: 2017-18; 2018-19

| Course Outcomes: After the course Students will be able to :- | |
|--|--|
| BTCE509.18-1 | Deflection of a simply supported beam and verification of Clark-Maxwell's theorem. |
| BTCE509.18-2 | Flexural Rigidity of a given beam. |
| BTCE509.18-3 | Deflection of a fixed beam and influence line for reactions. |
| BTCE509.18-4 | Deflection studies for a overhang beam and influence line for reactions. |
| BTCE509.18-5 | Structural Drawings of Reinforced Concrete Elements such as Beams, Slabs. |

Course Name: EEEEC (BTCE 601-18)

Year: 2020-21

| Course Outcomes: | |
|-------------------------|--|
| BTCE 601.18-1 | Have an idea of basic principles and elements of economics in general. |
| BTCE 601.18-2 | Be able to carry out and evaluate benefit/cost, life cycle and breakeven analyses on one or more economic alternatives. |
| BTCE 601.18-3 | Be able to understand the technical specifications for various works to be performed for a project and how they impact the cost of a structure. |
| BTCE 601.18-4 | Be able to quantify the worth of a structure by evaluating quantities of constituents, derive their cost rates and build up the overall cost of the structure. |
| BTCE 601.18-5 | Be able to understand how competitive bidding works and how to submit a competitive bid proposal. |

Course Name: FE (PECE-602A-18)

Year of study: 2019-2020

| Course Outcomes After the course completion, students will be able to: | |
|---|--|
| PECE-602A-18-1 | Evaluate the relative merits and demerits of various soil investigation techniques to understand the characteristics of subsoil for the design of foundations. |
| PECE-602A-18-2 | Analyze the settlement of substructures for cohesive and non-cohesive soils. |
| PECE-602A-18-3 | Predict the soil failure by understanding its criteria. |
| PECE-602A-18-4 | Apply the knowledge of soil bearing capacity for the design of shallow foundation. |
| PECE-602A-18-5 | Demonstrate the knowledge of earth pressure for the lateral stability of retaining wall and well foundations |
| PECE-602A-18-6 | Understand the concept of deep foundation (pile foundation and well foundation). |

Course Name: SAD (PECE-603D-18)

Year of study: 2019-2020

| Course Outcomes After the course completion, students will be able to: | |
|---|--|
| PECE-603D-18-1 | To understand and determine the indeterminacy of different types of structures. |
| PECE-603D-18-2 | To calculate forces and moments in indeterminate structures due to static as well as moving loads. |
| PECE-603D-18-3 | To analyse and design concrete structures i.e. column subjected to moments, foundations, retaining walls, etc. |

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| PECE-603D-18-4 | To analyse and design the steel structures i.e. column bases, beam-column joints, plate girders and roof trusses. |
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Course Name: CEM (PECE-604F-18)

Year of study: 2019-2020

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| PECE-604F -18-1 | To Provides a broad understanding of the composition, microstructure, and engineering behavior of various materials used in civil engineering applications. |
| PECE-604F -18-2 | To Introduces various modifications possibilities in construction materials. |
| PECE-604F -18-3 | To Understand and Explain Special Concrete. |

Course Name: AC (BTEC-401-18) (OPEN ELECTIVE)

Year of study: 2020-2021; 2021-22

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|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| BTEC401.18-1 | Understand the biasing of transistors and analyze BJT/FET amplifiers and H parameters. |
| BTEC401.18-2 | Analyze various Amplifiers with feedback circuits. |
| BTEC401.18-3 | Analyze the working of various oscillator circuits and their response |
| BTEC401.18-4 | Understand the functioning of voltage and power Amplifiers and to study their frequency response. |

Course Name: OS (BTCS402-18) (OPEN ELECTIVE)

Year of study: 2020-2021;2021-22

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| BTCS402-18-1 | Explain basic operating system concepts such as overall architecture, system calls, user mode and kernel mode; |
| BTCS402-18-2 | Distinguish concepts related to processes, threads, process scheduling, race conditions and critical sections; |
| BTCS402-18-3 | Analyze and apply CPU scheduling algorithms, deadlock detection and prevention algorithms; |
| BTCS402-18-4 | Examine and categorize various memory management techniques like caching, paging, segmentation, virtual memory, and thrashing; |
| BTCS402-18-5 | Design and implement file management system |

| | |
|--------------|---|
| BTCS402-18-6 | Appraise high-level operating systems concepts such as file systems, disk-scheduling algorithms and various file systems. |
|--------------|---|

Course Name: PD&G (PECE-701A-18)

Year of study: 2021-22

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| PECE-701A-18-1 | Understand patterns of Traffic and its behavior. |
| PECE-701A-18-2 | Develop an understanding for various sight distances and its affects |
| PECE-701A-18-3 | Analyze and design Horizontal and vertical curves |
| PECE-701A-18-4 | Design the cross-sectional elements for different types of highways |
| PECE-701A-18-5 | Develop and appreciate the concept of intersections |

Course Name: SHWM (PECE-702D-18)

Year of study: 2021-22

| | |
|---|---|
| Course Outcomes After the course completion, students will be able to: | |
| PECE-702D -18-1 | Understand about the solid waste problems |
| PECE-702D -18-2 | Understand the concept of collections of solid waste from sources |
| PECE-702D -18-3 | Understand the concept of waste management hierarchy. |
| PECE-702D -18-4 | Understand the municipal waste landfilling |
| PECE-702D -18-5 | Understand the hazardous waste management. |

Course Name: MS&E (Open Elective)(OECE 701-18)

Year of study: 2021-22

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| OECE-701-18-1 | Understand the metro systems |
| OECE-701-18-2 | Understand the planning and development of metro systems |
| OECE-701-18-3 | Understand the traffic management systems |
| OECE-701-18-4 | Understand the signaling and control of metro systems |

Course Name: DOHS (PECE-703A-18)

Year of study: 2021-22

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| PECE-703A-18-1 | Understand the types of hydraulic structures |
| PECE-703A-18-2 | Understand the design of the structures carrying water |
| PECE-703A-18-3 | Understand the diversion systems |
| PECE-703A-18-4 | Understand the lining of canals |

Course Name: PPLE (HSMC-255)

Year of study: 2021-22

| | |
|---|--|
| Course Outcomes After the course completion, students will be able to: | |
| HSMC-255-1 | To make the students understand the types of roles they are expected to play in the society as practitioners of the civil engineering profession |
| HSMC-255-2 | To develop some ideas of the legal and practical aspects of their profession |
| HSMC-255-3 | Understand elementary knowledge of laws that would be of utility in their profession, including several new areas of law such as IPR, ADR. |