**Course Code : 51**
**Branch : CIVIL ENGINEERING**
**System : SEMESTER**

**Class : 3** **Scheme Code : 40** **Sessional : 325**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 0093 | T | 75 | APPLIED MECHANICS |
| 5112 | T | 75 | BUILDING CONSTRUCTION |
| 5199 | T | 100 | BUILDING DRAWING |
| 7651 | T | 75 | FLUID MECHANICS |
| 9451 | T | 75 | CONSTRUCTION MATERIAL |
| 9851 | T | 75 | SURVEYING-I |
| 1093 | P | 25 | APPLIED MECHANICS |
| 5115 | P | 25 | BUILDING CONSTRUCTION |
| 7851 | P | 25 | FLUID MECHANICS |
| 9551 | P | 25 | CONSTRUCTION MATERIAL |
| 9951 | P | 25 | SURVEYING-1 |

**Class : 4** **Scheme Code : 40** **Sessional : 325**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 2519 | T | 75 | CONCRETE TECHNOLOGY |
| 4514 | T | 75 | SURVEYING-II |
| 4515 | T | 75 | STRUCTURAL MECHANICS |
| 4519 | T | 75 | WATER SUPPLY AND WASTE WATER ENGINEERING |
| 5186 | T | 75 | IRRIGATION ENGINEERING |
| 5191 | T | 75 | PUBLIC HEALTH & IRRIGATION ENGINEERING DRAWING |
| 9585 | T | 75 | GENERIC SKILLS AND ENTREPRENEURSHIP DEVELOPMENT |
| 3519 | P | 25 | CONCRETE TECHNOLOGY |
| 5519 | P | 25 | WATER SUPPLY AND WASTE WATER ENGINEERING |
| 6514 | P | 25 | SURVEYING-II |
| 6515 | P | 25 | STRUCTURAL MECHANICS |

**Class : 5** **Scheme Code : 40** **Sessional : 425**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 3518 | T | 75 | REINFORCED CONCRETE DESIGN |
| 4511 | T | 75 | RCC DRAWINGS |
| 4516 | T | 75 | HIGHWAY ENGINEERING |
| 4517 | T | 75 | SOIL AND FOUNDATION ENGINEERING |
| 9511 | T | 75 | RAILWAYS, BRIDGES AND TUNNELS |
| 6512 | P | 50 | COMPUTER APPLICATION IN CIVIL ENGINEERING |
| 6516 | P | 25 | HIGHWAY ENGINEERING |

| | | | |
|---|---|---|---|
| 6517 | P | 25 | SOIL AND FOUNDATION ENGINEERING |
| 6519 | P | 50 | SURVEY CAMP |
| 9512 | P | 50 | MINOR PROJECT WORK |
| 4612 | P | 50 | INDUSTRIAL TRAINING |

**Class : 6** **Scheme Code : 40** **Sessional : 300**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 8510 | T | 75 | STEEL STRUCTURE DESIGN |
| 8515 | T | 75 | EARTHQUAKE RESISTANT BUILDING DRAWING |
| 8516 | T | 75 | STEEL STRUCTURE DRAWING |
| 8517 | T | 75 | QUANTITY SURVEYING & VALUATION |
| 8518 | T | 75 | CONSTRUCTION MANAGEMENT AND ACCOUNTS |
| 9515 | T | 75 | REPAIR AND MAINTENANCE OF BUILDINGS |
| 9513 | P | 100 | MAJOR PROJECT WORK |

**Class : 6** **Scheme Code : 41** **Sessional : 300**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 8510 | T | 75 | STEEL STRUCTURE DESIGN |
| 8515 | T | 75 | EARTHQUAKE RESISTANT BUILDING DRAWING |
| 8516 | T | 75 | STEEL STRUCTURE DRAWING |
| 8517 | T | 75 | QUANTITY SURVEYING & VALUATION |
| 8518 | T | 75 | CONSTRUCTION MANAGEMENT AND ACCOUNTS |
| 9516 | T | 75 | ADVANCED CONSTRUCTION TECHNOLOGY |
| 9513 | P | 100 | MAJOR PROJECT WORK |

**Class : 6** **Scheme Code : 42** **Sessional : 300**

| Subject Code | Type | Marks | Subject Name |
|---|---|---|---|
| 8510 | T | 75 | STEEL STRUCTURE DESIGN |
| 8515 | T | 75 | EARTHQUAKE RESISTANT BUILDING DRAWING |
| 8516 | T | 75 | STEEL STRUCTURE DRAWING |
| 8517 | T | 75 | QUANTITY SURVEYING & VALUATION |
| 8518 | T | 75 | CONSTRUCTION MANAGEMENT AND ACCOUNTS |
| 9517 | T | 75 | GREEN BUILDINGS |
| 9513 | P | 100 | MAJOR PROJECT WORK |

**Course Name: AM (0095) Dip. CE-3rd** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 0095.1: | Interpret various types of units and their conversion from one to another |
| 0095.2: | Analyze different types of forces acting on a body and draw free body diagrams. |
| 0095.3: | Determine the resultant of coplanar concurrent forces. |
| 0095.4: | Calculate the co-efficient of friction for different types of surfaces. |
| 0095.5: | Calculate the least force required to maintain equilibrium on an inclined plane |
| 0095.6: | Determine the centroid/centre of gravity of plain and composite laminar and solid bodies. |
| 0095.7: | Determine velocity ratio, mechanical advantage and efficiency of simple machines |

**Course Name: BC (5112) (dip. CE-3rd ) Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 5112.1 | Define the different components and classification of building |
| 5112.2 | Select a foundation for particular type of building |
| 5112.3 | Explain different types of walls, scaffolding, shoring, underpinning and their constructional methodology Carry out the construction of brick wall |
| 5112.4 | Select different types of doors, windows, floors and stairs cases in building Recognise different parts of roof trusses and drainage system of roofs |
| 5112.5 | Identify and select application procedure for different types of surfaces finishes in building i.e. plastering, pointing, painting, white washing and distempering |
| 5112.6 | Evaluate the possible reason of dampness at various level in building and remedial means Demonstrate how to carry out different types of possible anti termite treatments in building |

**Course Name: BD (5199) (Dip CE 3rd)** ` **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 5199.1 | To be able to: Read and interpret building drawings Explain the drawing to craftsman |
| 5199.2 | Layout foundation plan of different types of foundations Prepare drawings of small buildings, developing different sections of building |
| 5199.3 | Draw building drawing sheets using CAD software Guide and supervise carpenters in various carpentry works related to doors, windows etc |
| 5199.4 | Prepare details of brick courses in joints Draw the sketches of various joints of carpentry |
| 5199.5 | Demonstrate circular arch and segmental arches |

**Course Name: FM (7651) (Dip. CE 3rd)** ` **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 7651.1 | Understand concepts of Interpret the different terms related to fluids |
| 7651.2 | Calculate the pressure exerted by fluids on the walls of containers. Calculate discharge through pipes, irrigation channels, water supply pipe lines. |
| 7651.3 | Use different flow measurement devices like venturimeter, mouthpiece, notches, weir, orificemeter Calculate size of the pipe for carrying a particular discharge. |
| 7651.4 | Prepare the details like dimensions, slope of the irrigation, canals and water courses |
| 7651.5 | Differentiate between different type of water pumps used in the field. Measure the loss of head in pipes and channels |

**Course Name: CM (9451) (Dip. CE 3rd)** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 9451.1 | Understand Classify rocks and identify particular type of stones Classify different types of bricks and tiles |
| 9451.2 | Perform laboratory tests of cement to determine properties of cement Identify types of defects of timber |
| 9451.3 | Select paints/varnishes for various types of surfaces Identify and use different types of metals/alloys |
| 9451.4 | Understand Select different materials used for wall paneling and false ceiling, such PVC, POP etc.. |
| 9451.5 | Select other materials commonly used for contemporary buildings. |

**Course Name: S-1 (9851) Dip. CE-3rd** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: |
|---|

| | |
|---|---|
| 9851.1 | Measure a long line with chain or tape |
| 9851.2 | Prepare maps for closed traverse and open traverse with survey instruments |
| 9851.3 | Measure bearing of line Perform leveling with digital level |
| 9851.4 | Find difference of level between two points with dumpy level, auto level and digital level |
| 9851.5 | To Perform temporary adjustments of leveling instruments Map an area by using traversing method. |

**Course Name:: AM LAB (1093) Dip. CE-3rd** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| **1093.1** | Verification of the polygon law of forces using gravesend apparatus. |
| **1093.2** | To verify the forces in different members of jib crane |
| **1093.3** | To verify the reaction at the supports of a simply supported beam. |
| **1093.4** | To find the mechanical advantage, velocity ratio and efficiency in case of an inclined plane |
| **1093.5** | To find the mechanical advantage, velocity ratio and efficiency of a screw jack. 6. |
| **1093.6** | To find the mechanical advantage, velocity ratio and efficiency of worm and worm wheel. |

**Course Name: BC Lab(5115) (Dip. CE 3rd)** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 5115.1 | To identify the stones used in building works by visual examination |
| 1295.2 | To determine the crushing strength of bricks |
| 5115.3 | To determine the water absorption of bricks and efflorescence of bricks |
| 5115.4 | To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only |
| 5115.5 | The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market |

**Course Name: FM Lab (7851) (Dip. CE 3rd)** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 7851.1 | To verify Bernoullis Theorem |
| 7851.2 | To find out venturimeter coefficien |
| 7851.3 | To determine coefficient of velocity (Cv), Coefficient of discharge (Cd) Coefficient of contraction (Cc) of an orifice and verify the relation between them |
| 7851.4 | To perform Reynold's experiement |
| 7851.5 | To verify loss of head in pipe flow due to a) Sudden enlargement b) Sudden contraction c) Sudden bend |
| 7851.6 | Demonstration of use of current meter and pitot tube |
| 7851.7 | To determine coefficient of discharge of a rectangular notch/triangular notch |

**Course Name: CM Lab (9551) (Dip. CE 3rd)** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 9551.1 | To identify the stones used in building works by visual examination |
| 9551.2 | To determine the crushing strength of bricks |
| 9551.3 | To determine the water absorption of bricks and efflorescence of bricks |
| 9551.4 | To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only |
| 9551.5 | The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market. |

**Course Name: Sur-1 Lab (9951) Diploma CE-3rd** **Year of study 2020-2021**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| **9951.1** | To Determine the Chain surveying |
| **9951.2** | To Determine Compass Surveying: i) a) Study of prismatic compass 92 b) Setting the compass and taking observations c) Measuring angles between the lines meeting at a point |
| **9951.3** | To Determine the Levelling: i) |

| | |
|---|---|
| **9951.4** | To determine Plane Table Surveying. |
| **9951.5** | Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments |

**Course Name: CT (2519) Dip. CE-4th** **Year of study 2020-2021**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 2519.1 | Evaluate physical properties of cement concrete as per IS codes Conduct various tests on aggregate in laboratory to evaluate their characteristics |
| 2519.2 | Interpret the grading charts of different aggregates and evaluate fineness modulus of aggregates Evaluate workability and strength of concrete |
| 2519.3 | Recognise bleeding, segregation, harshness defects in fresh concrete Explain hydration process of cement, water to cement (w/s) ratio and analyze relationship between compressive strength and w/c ratio Conduct various destructive and non-destructive (NDT) test |
| 2519.4 | Design mix of concrete as per IS code Describe the use of different admixture to enhance the properties of concrete |
| 2519.5 | Explain the feature of special concretes Demonstrate how to carry out various concreting operation |

**Course Name: Sur-2 (1518) (Dip. CE 4th)** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 1518.1 | Interpolate contours on a given sheet of paper Align a proposed road |
| 1518.2 | Draw a contour plan of an area Calculate earth work for a road from a contour map |
| 1518.3 | Prolong a line with theodolite Conduct closed traversing |
| 1518.4 | Measure horizontal and vertical angles Set out simple circular curve |
| 1518.5 | Read Total Station, EDM and Auto level |

**Course Name: IE(0511) Dip CE-4th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 0511.1 | Explain concept of necessity of irrigation in India Recognise different crops and their water requirements |
| 0511.2 | Define rainfall and runoff Measure rainfall and read rain gauges and hydrographs |
| 0511.3 | Monitor construction and maintenance work of canal and canal linings Monitor |

| | |
|---|---|
| | installation of tubewells and water harvesting techniques |
| 0511.4 | Supervise maintenance and construction work of canal head works and cross regulators Supervise construction of various river training works |
| 0511.5 | Carry out desilting operation of canals |

**Course Name: CT $^{Lab}$ (2512) (Dip. CE 4th)** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 2512.1 | To determine the physical properties of cement such as fineness, consistency, setting time, soundness and compressive strength of cement as per IS Codes |
| 2512.2 | To determine silt content in fine aggregate 3. Determination of specific gravity and water absorption of aggregates 4. Determination of bulk density and voids of aggregates |
| 2512.3 | Determination of particle size distribution of fine, coarse and all-in-aggregate by sieve analysis (grading of aggregate), To determine workability by slump test and to verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump, Compaction factor test for workability |

**Course Name: SM (3510) Dip. CE-4$^{th}$** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 35101 | Conduct different tests on mild steel Calculate modulus of elasticity Analyse and explain stress-strain diagram of mild and HYSD steel |
| 3510.2 | Calculate various forces used in design of structures Calculate shear force, bending moment for simply supported, cantilever and overhanging beams with concentrated and uniformly distributed loads |
| 3510.3 | Calculate moment of inertia, second moments of inertia, radius of gyration, section modulus for L, T, channel and I sections Calculate the bending stresses, moment of resistance of simply supported beams |
| 3510.4 | Explain shear stress, stress distribution diagram for rectangular, circular, I,T and L sections |
| 3510.5 | Calculate slope and deflection of determinate structures Verify forces in a framed structure |

**Course Name: SM Lab (4510) (Dip. CE 4$^{th}$ )** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 4510.1 | Determination of yield stress, ultimate stress, percentage elongation and plot the stress strain diagram and compute the value of young's modulus on mild steel, Testing of HYSD Steel |

| | |
|---|---|
| 4510.2 | Determination of Young's modulus of elasticity for steel wire with searl's apparatus, Determination of modulus of rupture of a concrete beam |
| 4510.3 | Design various tree and graph applications using non-linear data structures. |
| 4510.4 | Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle third point |
| 4510.5 | Verification of forces in a framed structure |

**Course Name: Survey-II lab (2518) Dip CE-4th** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 2518.1 | Contouring: i) Preparing a contour plan by radial line method by the use of a Tangent Clinometer/Tachometer ii) Preparing a contour plan by method of squares iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections. |
| 2518.2 | Theodolite: i) Taking out the Theodilite, mounting on the tripod and placing it back in the box ii) Study of a transit vernier theodolite; temporary adjustments of theodolite iii) Reading the vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods iv) Measurement of vertical angles and use of tachometric tables v) Measurement of magnetic bearing of a line vi) Running a closed traverse with a theodolite (at least five sides) and its plotting vii) Height of objects with and without accessible bases |
| 2518.3 | Curves i) Setting out of a simple circular curve with given data by the following methods a) Offsets from the chords produced b) One theodolite method |
| 2518.4 | Minor instruments: i) Demonstration and use of minor instruments like Ceylon Ghat Tracer, Tangent Clinometer, Pantagraph, Abney level etc. ii) Use of planimeter for computing areas |
| 2518.5 | Demonstration of digital instruments through field visits to Survey of India and other government agencies, To plot an area with he help of Total Station |

**Course Name: WSWWE (0514) Diploma CE-4th** **Year of study 2020-2021**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 0514.1 | Calculate the water requirement for a particular population Check and improve the quality of water by giving required treatment to water |
| 0514.2 | Calculate the size of different pipes to carry water |
| 0514.3 | Lay the network of pipes for water supply as well as sewerage in a building<br>Draw the location of different appurtenances |

| | |
|---|---|
| 0514.4 | Carry out the disposal of sewage Supervise the water supply and waste water schemes |

**Course Name: WSWWE Lab (2514) Dip. CE-4th Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 2514.1 | To determine turbidity of water sample, To determine dissolved oxygen of given sample, To determine pH value of water |
| 2514.2 | To perform jar test for coagulation, To determine BOD of given sample , To determine residual chlorine in water, To determine conductivity of water and total dissolved solids |
| 2514.3 | To study the installation of following: a) Water meter b) Connection of water supply of building with main c) Pipe valves and bends d) Water supply and sanitary fittings, To study and demonstrate the joining/threading of GI Pipes, CI Pipes, SWG pipes, PVC pipes and copper pipes. |
| 2514.4 | To demonstrate the laying of SWG pipes for sewers, Study of water purifying process by visiting a field lab, Demonstration of plumbing tools. |

**Course Name: PHIE Drg (0513) Diploma CE-4th Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 0513.1 | Draw the drawings of traps, manholes and inspection chambers Draw the drawing of water supply plan of building |
| 0513.2 | Draw the sewerage plan of buildings Draw the drawing of channel (L-section and cross-section) |
| 0513.3 | Draw and demonstrate cross-section of an earthen dams Draw layout plan of a canal head works |
| 0513.4 | Read and interpret the Public Health and Irrigation Engineering Drawings |

**Course Name: HE (2515) Dip CE-5th Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 2515.1 | Classify the roads as per IRC types and geometrics Explain various components of a flexible/rigid pavement |
| 2515.2 | Select various highway materials and test them for different quality parameters Supervise construction of a highway in plain areas and hilly areas |

| | |
|---|---|
| 2515.3 | Select various highway materials and test them for different quality parameters Supervise construction of a highway in plain areas and hilly areas |
| 2515.4 | Carry out repair and maintenance of roads Supervise preparation of bituminous mix in the hot mix plants |
| 2515.5 | Use various road construction equipment Describe the basic terminology of various components of an airport |

**Course Name: RBT(2516) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 2516.1 | Describe different component parts of permanent way such as rails, sleepers and ballest Distinguish different types of rail gauges used in India |
| 2516.2 | Use of different types of rail fastenings and fixtures Classify bridges and select suitable type of bridge for a particular purpose |
| 2516.3 | Describe essential components of a ROB and RUB |
| 2516.4 | Supervise construction of a tunnel Carry out ventilation, drainage and lightening of tunnels |

**Course Name: GSED (2222) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 2222-1 | Explain the importance of generic skills Demonstrate self development Manage himself/herself physically, intellectually and psychologically |
| 2222-2 | Work effectively as a team member Manage tasks effectively Apply knowledge to solve problems |
| 2222-3 | Develop an entrepreneurial mindset. Identify entrepreneurial support system for new ventures and small businesses. Recognize a business opportunity. |
| 2222-4 | Prepare project report Demonstrate how to launch an individual's entrepreneurial career |

**Course Name: SFE (2517) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| **2517.1** | Identify and classify various types of soils Select particular type of foundation according to loading of structure |
| **2517.2** | Determine shear strength of soil Carry out compaction of soils as per density |

| | |
|---|---|
| **2517.3** | Calculate bearing capacity of soil Calculate liquid limit and plastic limit of soil |
| **2517.4** | Calculate maximum dry density of soil and optimum moisture content of soil Perform various tests of the soil |

**Course Name:RCD (2510) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| **2510.1** | Explain methods of RCC design i.e. - Working stress methods - Limit state methods |
| **2510.2** | Design singly, doubly reinforced rectangular and T&L beams as per IS Code |
| **2510.3** | Design one way and two way slab |
| **2510.4** | Design axially loaded column and their isolated footing |

**Course Name: HE LAB (3515) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| **3515.1** | Determination of penetration value of bitumen 2. Determination of softening point of bitumen 3. Determination of ductility of bitumen |
| **3515.2** | Determination of impact value of the road aggregate 5. Determination of abrasion value (Los Angeles') of road aggregate |
| **3515.3** | Determination of crushing strength of aggregate 7. Determination of flakness and elongation index of aggregate |
| **3515.4** | Determination of the California bearing ratio (CBR) for the sub-grade soil 9. Demonstration of working of hot mix plant through a field visit |

**Course Name: SFE LAB(3517) Dip CE-5th** **Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 3517-1 | To determine the moisture content of a given sample of soil |
| 3517-2 | To determine Auger Boring and Standard Penetration Test |
| 3517-3 | To determine Extraction of Disturbed and Undistrubed Samples |
| 3517-4 | To determine Field Density Measurement (Sand Replacement and Core Cutter Method) |
| 3517-5 | To determine Liquid Limit and Plastic Limit Determination: |

| | |
|---|---|
| 3517-6 | To determine Mechanical Analysis, Laboratory Compaction Tests (Standard Proctor test, Demonstration of Unconfined Compression Test |
| 3517-7 | Demonstration of Direct shear and vane shear test on sandy soil samples |

**Course Name: Cadd Lab (3514) Diploma CE-5th Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| **2895**.1 | Draw 2D drawings on AutoCAD viz. plan, section and elevation of a residential building |
| **2895**.2 | Introduction and use of AutoCAD for making 2D Drawings and develop plan, section and elevation of a residential building, STAAD-Pro, Revit or Primavera Project Planner, BIM, ArcGIS |

**Course Name: SSD (8510) Diploma CE-6th Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 8510.1 | Explain structural properties of steel and its designation as per Indian Standards Select different types of bolted and welded joints |
| 8510.2 | Analyze and design single and double angle section struts and I section compression members |
| 8510.3 | Explain different types of trusses, their different components and usability |
| 8510.4 | Analyze and design of simply supported steel beams Select various types of plate girders |
| 8510.5 | Supervise fabrication and erection of steel structure like trusses, columns and girders |

**Course Name: ERBC (8515) (Dip. CE 6th) Year of study 2021-2022**

| **Course Outcomes**<br>**After the course completion, students will be able to:** | |
|---|---|
| 8515.1 | Classify the earthquakes |
| 8515.2 | Explain seismic behavior of traditionally built construction |
| 8515.3 | Supervise construction of earthquake resistant buildings |
| 8515.4 | Monitor reinforcement detailing in earthquake resistant structures, Manage all rescue operation caused due to earthquake |

**Course Name: SSD Drg (8516) Dip. CE 6th** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| **6595.1** | Read and interpret steel structural drawing Prepare the detailed drawings of toe joint, ridge joint, details of purlins and roof sheets |
| **6595.2** | Prepare and draw slab base connection, gusseted base connection grillage base connection for single section steel columns Draw column beam connections |
| **6595.3** | Prepare drawings of plate girder from given design data Prepare the drawing and demonstrate steel roof truss |
| **6595.4** | Draw the structural drawing sheets using CAD Software |

**Course Name: QSV (8517) Diploma CE-6th** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| **8517.1** | Explain different units of measurement for different items |
| **8517.2** | Calculating quantities of materials and prepare the material chart |
| **8517.3** | Prepare detailed and abstract of estimates from drawings Prepare tender document of different civil engineering items by using C.S.R. rates with premium |
| **8515.4** | Use principles of valuation for valuation of a building. |

**Course Name: CMA(8518) Diploma CE-6th** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 8518.1 | State functions of various aspects of controlling construction job/project Explain pre-tender stage and contract stage |
| 8518.2 | Prepare bar charts for simple construction work Prepare scheduling techniques i.e. PERT and CPM Prepare job layout of building |
| 8518.3 | Comply with various labour laws Analyze and support in effective functioning of organization |
| 8518.4 | Inspect quality at various stages of the construction Control accidents and safety concerns Prepare measurement books and bill of quantities |

**Course Name: GB(9517) (Dip. CE 6th)** **Year of study 2021-2022**

| Course Outcomes<br>After the course completion, students will be able to: | |
|---|---|
| 9517.1 | Describe various features of green building and benefits of green buildings |

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|---|---|
| 9517.2 | Explain site selection and site planning |
| 9517.3 | List out various concepts of design of components of Green Building |
| 9517.4 | Use eco-friendly green building materials Integrate renewable energy systems in the green building construction |
| 9517.5 | Use energy conservation measures in the buildings by following ECBC |
| 9517.6 | Identify various water efficient fixtures |
| 9517.7 | Use rainwater harvesting techniques |
| 9517.8 | Demonstrate waste water and solid waste management |
| 9517.9 | Use low VOC materials, Evaluate different type of Green Building Ratings for certification of building |