Mapping of Experiments with COs B.Tech (Civil) -2021 Programme

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
Class: - B. Tech (Civil) Sem:- I					**Name of Course:-** Applied Chemistry		
1	Determination of dissolved oxygen in water		✓				
2	Determination of hardness of a given water sample by using EDTA		✓				
3	Measurement of chloride, sulphate and salinity of water samples by Simple titration method. (AgNO3 and potassium chromate)		✓				
4	Determination of Ca from cement					✓	
5	To determine the strength of given acid using pH titrations				✓		
6	Determination of Biochemical Oxygen Demand (BOD)		✓				
7	Study of corrosion of metals in medium of different pH.	✓					
8	To learn the specific charge/discharge characteristics of a Lithium- ion (Li- ion) battery through experimental testing of a remote triggered Li- ion Battery.				✓		
9	To Prepare Phenol formaldehyde/Urea formaldehyde resin						✓
10	To study set up of Daniel Cell				✓		
11	To determine pH of soil		✓				
12	To determine Acidity of soil				✓		
13	To Study Lead – Acid Battery				✓		
14	Preparation of borax/ boric acid.				✓		
Class: - B. Tech (Civil) Sem:- I		**Name of Course:-** Construction & Materials					
1	Lettering, Symbols, Types of line and dimensioning	✓					
2	Foundation: Isolated, Combined footings, Under Reamed Piles, Rafts		✓				
3	Type of stone masonry: Elevation and Sectional Drawing		✓				
4	Types of Brick Masonry		✓				
5	Types of Doors and windows			✓			
6	Types of stairs: plan and sectional drawing			✓			
7	Trusses: Various types of Trusses				✓		
8	Site Visit: To understand Various building Material and their use.	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- I **Name of Course:-** Civil Engineering Structures and Geology							

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
1	Review project on any one type of structures	✓	✓	✓			
2	Identification of the Minerals (2 Practical)				✓		
3	Identification of Igneous rocks (1 Practical)				✓		
4	Identification of Secondary rocks (1 Practical)				✓		
5	Identification of Metamorphic rocks (1 Practical)				✓		
6	Study of Contoured Geological Maps & drawing the sections (Six Practical)				✓	✓	
7	Visit to site for understanding the geological features.				✓	✓	✓
Class: - B. Tech (Civil) Sem:- I		**Name of Course:-** Graphics for Civil Engineers					
1	Types of Lines, Dimensioning practice, free hand lettering, 1st, 3rd angle methods symbol.	✓	✓				
2	Engineering Curves	✓					
3	Orthographic Projections			✓			
4	Isometric Views			✓			
5	Projections of Points and Lines				✓		
6	Projections of Planes				✓		
7	Projections of Solids					✓	✓
Class: - B. Tech (Civil) Sem:- I		**Name of Course:-** Workshop Technology					
1	Plumbing and Pipe fitting Shop	✓	✓	✓			
2	Welding Shop	✓	✓	✓			
3	Joining methods	✓	✓	✓			
4	Carpentry Shop	✓		✓			
5	Plastic Molding shop	✓		✓			
Class: - B. Tech (Civil) Sem:- I **Name of Course:- F**undamentals of Problem Solving Logic (Using C)							
1	Write a C program to check prime number and even-odd numbers	✓					
2	Write a C program to print sum of digits 1 to 10	✓	✓				
3	Write a C program to swap two numbers		✓				
4	Write a C Program to check whether an alphabet is vowel or consonant			✓			
5	Write a C Program to Find the Length of a String without using string functions			✓			
6	Write a C program to find area and circumference of circle				✓		

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
7	Write a C program to accept the length of three sides of a triangle and to check triangle as equilateral or not				✓	✓	
8	Write a C program to implement linear search technique						✓
Class: - B. Tech (Civil) Sem:- II				**Name of Course:-** Acoustics and Modern Physics			
1	Oscillation of a Spring - Mass System and a Torsional Pendulum	✓					
2	To study normal modes of oscillation of two coupled pendulums and to measure the normal mode frequencies.	✓					
3	To study normal modes of transverse vibration of a stretched string	✓					
4	Study of resonance in LCR circuit	✓					
5	To determine the velocity of sound		✓	✓			
6	Measurement of average SPL across spherical wave front and behavior with the distance		✓				
7	Expansion chamber muffler: investigation of muffler response as a filter in the low frequency approximation by determining insertion loss.		✓				
8	Interference of sound using PC speakers						✓
9	Determination of velocity of sound in liquid by ultrasonic interferometer			✓			
10	Ultrasonic probe - a study			✓			
11	Plotting the hysteresis loop for given magnetic material					✓	
12	Determination of radius of Plano-convex lens/wavelength of light/Flatness testing by Newton's rings						✓
13	Determination of wavelength of light using diffraction grating						✓
14	Determination of resolving power of telescope						✓
15	Determination of thickness of a thin wire by air wedge						✓
16	Determination of refractive index for O-ray and E-ray						✓
Class: - B. Tech (Civil) Sem:- II				**Name of Course:-** Statics and Dynamics			
1	Study of equilibrium of concurrent force system in a plane	✓					
2	Determination of reactions of Simple and Compound beam.	✓					

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
3	Determination of coefficient of friction for Flat Belt.	✓	✓				
4	Determination of coefficient of friction for Rope.	✓	✓				
5	Determination of Centroid of line or plane elements				✓		
6	Study of Curvilinear motion.					✓	
7	Determination of Coefficient of Restitution.						✓
Class: - B. Tech (Civil) Sem:- II		**Name of Course:-** Basic Land Surveying					
1	Linear measurements with tape and accessories.	✓					
2	Study and use of Prismatic compass.	✓					
3	Study and use of auto level and double check leveling		✓				
4	Compound leveling and fly leveling, calculation by rise and fall method.		✓				
5	Study and use of 20” Vernier Theodolite			✓			
6	Measurement of horizontal angle of triangle by repetition method and applying check.			✓			
7	Measurement of vertical angle by transit Theodolite			✓			
8	Trigonometrical levelling by transit Theodolite.			✓			
9	Project 1 Road project of minimum length of 250 M including fixing of alignment, profile leveling and cross sectioning.(Two full imperial drawing)	✓	✓				✓
10	Project 2 Theodolite traverse survey of closed traverse for minimum 0.5 hectares area including building roads etc. (One full imperial drawing)	✓	✓	✓			✓
11	Computation of horizontal distance and elevation of points by tachometry for horizontal and inclined sights				✓		
12	Introduction and study of outfit of plane table and method of radiation.				✓		
13	Intersection method of plane table survey.				✓		
14	Closed plane table traverse survey around a small four-sided building				✓		
15	Setting out simple circular curve by Rankin’s method of deflection angle					✓	
Class: - B. Tech (Civil) Sem:- II		**Name of Course:-** Construction, Design & Drawing					

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
1	Preparation of working drawings of any one of the buildings listed below: a) Residential Building b) Commercial Building c) Educational Building d) Industrial Building e) Recreational Building f) Health Club	✓					
2	Plan/Typical floor plan to a suitable scale.	✓	✓	✓	✓		
3	Elevation and section to a suitable scale.	✓	✓	✓	✓		
4	Site plan showing water supply and Drainage.	✓	✓	✓	✓		
5	Foundation Plan to a suitable scale.	✓	✓	✓	✓		
Class: - B. Tech (Civil) Sem:- II **Name of Course:**- Civil Engineering Software I AutoCAD							
1	AutoCAD Drawing of small objects	✓					
2	2) AutoCAD Drawing of plan, elevation and section of small building.		✓	✓			
3	3) AutoCAD 3D view of small building.				✓		
Class: - B. Tech (Civil) Sem:- II **Name of Course:**- Object Oriented Programming (Using C++)							
1	Study of different Object Oriented Programming Concept ,Application and benefits of OOP.	✓					
2	Write a C++ program to find whether given number is perfect number or not		✓				
3	Write a C++ Program to find Fibonacci Series.			✓			
4	Write a C++ Program to find Area of Circle and Triangle Using concept of Function Overloading			✓			
5	Write a C++ program for simple Calculator using Class and Object Concept.			✓			
6	Write a C++ Program for Employee Management System Using Single inheritance, Multiple inheritance and Multilevel inheritance				✓		
7	Write a C++ Program to implement Concept of Constructor and Destructor					✓	
8	Write a C++ Program for Storing Student Information with the help of File reading and Writing Operations						✓
Class: - B. Tech (Civil) Sem:- III **Name of Course:**- Mechanics of Solids							
1	Tension test on mild steel	✓					

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2	Tension test on tor steel	✓					
3	Direct Shear (Single & Double) test on mild steel	✓	✓				
4	Bending test on timber		✓	✓			
5	Torsion test on mild steel				✓		
6	Impact tests (Izod & Charpy) - Mild Steel, Aluminium, Brass, Copper	✓			✓		
7	Hardness test (Rockwell)- mild steel, aluminium, brass copper	✓					
8	Compressive Strength of brick	✓					
9	Construction of Mohr's Circle for calculation of principal stresses.						✓
10	Development of an excel sheet for calculation of stresses at a point in cross section for given loadings.						✓
11	Development of an excel sheet for calculation of principal stress at a point.						✓
Class: - B. Tech (Civil) Sem:- III **Name of Course:-** Construction Equipment and Methods							
1	Collection of pamphlets and information regarding various construction techniques equipment (Information pertaining to the following aspects should be collected) I. Types, Different makes of the equipment. ii. Useful Life and area of use iii. Equipment performance data	✓		✓	✓		
2	In context of tunnelling, enlist and explain different tunnel driving techniques & tunnel boring machines.	✓		✓			
3	Classify, discuss briefly various earth work machineries (any five) & factors affecting in selection including their economics.					✓	
4	Classify & explain various hoisting & conveying equipment. Discuss in detail about factors affecting in selection of them & its economics.				✓		
5	Explain crushers & its types in detail.				✓		
6	Enlist & explain with neat diagrams, different dewatering techniques (electroosmosis method, well point system).						✓
7	Write a brief note on Pumps & its types. Discuss in detail about various pumps used for concreting.						✓

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8	Prepare a Power Point presentation (P.P.T.) on any of the topic of your choice from the entire syllabus after getting approval of topic from your subject teacher.	✓	✓	✓	✓	✓	✓
9	Site Visit report to be prepared after visiting the site covering topics mentioned in syllabi.	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- III					**Name of Course:-** Fluid Mechanics		
1	Determination of Viscosity	✓					
2	Study of Pressure Measuring Devices	✓					
3	Study of Stability of Floating Bodies	✓					
4	Verification of Bernoulli's Theorem	✓	✓		✓		✓
5	Determination of C_d of Venturimeter	✓	✓				
6	Determination of C_d of Orifice	✓	✓	✓	✓		
7	Determination of C_d of Notch	✓	✓				
8	Study of Laminar flow Using Heleshaw's Apparatus	✓			✓	✓	
9	Study of Laminar flow Using Reynold's Apparatus	✓			✓		✓
Class: - B. Tech (Civil) Sem:- III					**Name of Course:-** Concrete Technology		
A	**Test on Aggregate (Minimum 4)**						
1	Moisture content, Water Absorption	✓	✓				
2	Specific Gravity of Aggregate	✓	✓				
3	Fineness Modulus of Aggregate	✓	✓				
4	Aggregate Impact Test	✓	✓				
5	Aggregate Crushing Test	✓	✓				
6	Flakiness Index, Elongation Index	✓	✓				
B	**Test on Cement (Minimum 3)**						
1	Fineness of Cement	✓					
2	Standard consistency and Setting time of Cement.		✓				
3	Compressive strength of Cement		✓		✓		
4	Soundness of Cement		✓				
C	**Tests on Concrete (Minimum 3)**						
1	Effect of admixture on workability of concrete			✓			
2	Compressive Strength of Concrete			✓			
3	Flexural strength of concrete			✓			
Class: - B. Tech (Civil) Sem:- III		**Name of Course:-** Vocational Course-I : AutoCAD 3D					
1	Preparation of 3D solid Primitives & Mesh Primitives	✓					
2	Preparation of 3D models from 2D profiles		✓				
3	AutoCAD 3D Drawing of a plan, elevation, and section of small building.	✓	✓	✓			

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4	Preparation of AutoCAD 3D views of small building			✓	✓		
5	Use of different Materials for Items				✓	✓	
6	3D Model rendering & Scale Printing of models						✓
Class: - B. Tech (Civil) Sem:- III **Name of Course:**- Data Analytics Using Python							
1	Write a program to perform basic operations using Python Functions.	✓					
2	Write a program to perform to read, write and modify text file data using OO Python.	✓					
3	Exercise different functionalities of Matplotlib package	✓					
4	Write a program to measure central tendency and dispersion of given data		✓				
5	Write a program to measure of variability for given sample and population		✓				
6	Write a program to implement Bayes Theorem			✓			
7	Write a program to visualize different types of distribution			✓			
8	Write a program to develop linear and multiple regression model.				✓		
9	Write a program to perform Analysis of variance.					✓	
10	Write a program to develop non-linear regression model						✓
Class: - B. Tech (Civil) Sem:- IV **Name of Course:**- Open Channel flow and Hydraulic Machinery							
1	Flow around aerofoil.	✓					
2	Flow around a Circular Cylinder.				✓		
3	Impact of jet around flat / curved plate.				✓		✓
4	Performance Curves of Hydraulic Turbine. Constant Head Characteristic Curve				✓	✓	✓
5	Characteristics of Centrifugal Pump.						✓
6	Uniform flow formulae of open channel.	✓	✓	✓	✓		
7	Velocity distribution in open channel flow.	✓	✓	✓			
8	Hydraulic jump as energy dissipater.	✓		✓		✓	
9	Characteristics of various GVF profiles.	✓	✓	✓			
10	Design of Hydraulic Centrifugal Pump.						✓
11	Design of Hydraulic Turbine.				✓	✓	✓
12	GVF Computations by Direct Step Method.		✓	✓			
13	Site Visit	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- IV **Name of Course:**- Geomechanics							

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
1	Determine water content of given soil sample by oven drying method	✓	✓				
2	Determine specific gravity of given soil by pycnometer method	✓	✓				
3	Determine of consistency limits of soil – Liquid, plastic and shrinkage limit	✓	✓				
4	Determine the shear parameters of given soil by Direct shear test					✓	
5	Determine dry unit weight of soil in field by core cutter or sand replacement method	✓	✓				
6	Determine co-efficient of permeability by constant head test or falling head test of given soil sample			✓			
7	Determine MDD and OMC by standard proctor test and Modified proctor test of given soil sample	✓	✓		✓		
8	Determine grain size distribution of given soil sample by mechanical sieve analysis		✓				
9	Determine the shear parameters of given soil by Unconfined Compression Strength of soil.				✓		
10	Determine the shear parameters of given soil by Triaxial Shear Test				✓		
11	Determine the shear parameters of given soil by Vane Shear Test				✓		
Class: - B. Tech (Civil) Sem:- IV **Name of Course:-** Planning and Management of Construction Projects							
1	Assignment on different types of organization and their flowcharts.	✓					
2	Assignment on bar chart and milestone chart.		✓				
3	Assignments on CPM.			✓			
4	Assignments on PERT.			✓			
5	Assignment on crashing of network.				✓		
6	Assignment on updating of network.				✓		
7	Assignment on MS Project.		✓				
8	Mini Project- Preparation Network and analysis for a building construction project and finding out different types of floats.			✓			
Class: - B. Tech (Civil) Sem:- IV **Name of Course:-** Vocational Course-II :Plumbing Engineering							
1	Introduction of available codes in plumbing.	✓					
2	Report on necessity of traps, intercepts and vents	✓					

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
3	Roles of plumbing contractor and plumbing consultants				✓		
4	Report on Plumbing fixtures and fittings and explain any ten		✓				
5	Report on materials for water supply and drainage			✓			
6	Detailed hydraulic design for plumbing of G+1 Bungalow				✓		
7	Design solar water piping for G+1 Bungalow		✓				
8	Detailed Plumbing design for high rise structure						✓
9	Drafting purchase orders for Plumbing Project					✓	
10	Project1: Site Visit and report on site visit	✓	✓	✓	✓	✓	✓
11	Project 2 :Plumbing Design Drawing and site Installation For a G+1 Bungalow	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- IV **Name of Course:**- Construction Practices in Civil Engineering							
1	Testing of concrete cubes of different grades		✓				
2	Slump test on concrete and effect of plasticizers.		✓				
3	Study of reinforcement and its bending for different structural members.		✓				
4	Study of various of drawings required on construction sites					✓	
5	Setting out and layout of building foundation.	✓					
6	Study of formwork& scaffolding				✓	✓	
7	Construction of different types of brick masonry bonds, study of recent types of bricks and blocks				✓	✓	
8	Study of plastering & pointing				✓	✓	
9	Study of different types of tiles.				✓		
10	Introduction - Water supply & sanitary fittings and appliances		✓	✓	✓		
11	Concealed construction practices		✓	✓	✓		
12	Types of paints			✓	✓		
13	Methods of Waterproofing of toilets & roofs				✓	✓	
14	Study of Deck Slab				✓		
15	Study of stock register format and daily report			✓		✓	
16	Study of construction of concrete walls		✓		✓	✓	

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17	Study of precast techniques				✓	✓	
Class: - B. Tech (Civil) Sem:- V **Name of Course:-** Infrastructure and Transportation Systems							
1	Aggregate Impact Value Test.				✓		
2	Aggregate Crushing Strength Test				✓		
3	Shape Test (Flakiness Index and Elongation Index)				✓		
4	Los Angeles Abrasion Test.				✓		
5	Specific Gravity and Water Absorption Test by basket method				✓		
6	Stripping Value Test				✓		
7	Penetration Test				✓		
8	Ductility Test on Bitumen.				✓		
9	Softening Point Test				✓		
10	Specific Gravity Test				✓		
11	Bitumen Emulsion Test				✓		
12	Traffic Count Survey		✓				
13	Study of format of household survey and recording sample measurements.		✓				
14	GIS Map for transportation		✓				
Class: - B. Tech (Civil) Sem:- VI **Name of Course:-** Advanced Surveying with Geomatics							
1	Study and use of total station for traverse survey.	✓	✓				
2	Applications of Total Station for REM, RDM.		✓				
3	Study and Use of Mirror stereoscope with parallax bar						✓
4	Over view of ARC GIS and Tools				✓		
5	Creating a Geodata base File				✓		
6	Digitization :Create a map by digitization				✓		
7	Georeferencing: Associate the image or map to its location on ground				✓		
8	Topology Building: Determine topological errors and Clear.				✓		
9	Data Exploration and Query Analysis				✓		
10	Delineation of Water shed using DEM				✓		
Class: - B. Tech (Civil) Sem:- V **Name of Course:-** Limit State Design of Steel Structures							
	PART-A Design of any **ONE** projects with 2 number of half imperial sheets **Project -Design of Roof Truss / Design of Building**						
1	Structural configuration	✓	✓				
2	Load Calculation	✓	✓	✓	✓	✓	✓
3	Analysis of structure	✓					
4	Evaluate Design Load	✓		✓	✓	✓	✓

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
5	Design of Members	✓		✓	✓	✓	✓
6	Design of Connection	✓	✓	✓			
7	Drawing	✓	✓	✓	✓	✓	✓
	PART-B						
1	Site Visit	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- V **Name of Course:-** Vocational Course-III: Structural Assessment and Retrofitting							
1	methods on visual observation	✓					
2	testing methods and sampling techniques.	✓					
3	working principle of Rebound Hammer.		✓				
4	calibration of Rebound Hammer		✓				
5	compressive strength of structural element by Rebound Hammer.		✓				
6	limitations of Rebound Hammer		✓				
7	working principle of Ultrasonic Pulse Velocity meter.		✓				
8	calibration of Ultrasonic Pulse Velocity meter		✓				
9	surface preparation of structural elements for Ultrasonic Pulse Velocity meter		✓				
10	compressive strength of structural element by Ultrasonic Pulse Velocity		✓				
11	data collection, processing and interpretation of the results of Ultrasonic Pulse Velocity		✓				
12	different retrofitting techniques and materials available and its selection			✓			
13	Preparation of structural assessment report			✓			
Class: - B. Tech (Civil) Sem:- V **Name of Course:-** Civil Engineering Software – II (Staad Pro)							
	Term work: Term work consists of following practical using FEM Software						
1	FEM Model of beams.	✓					
2	FEM Model of plane and space frame.	✓					
3	FEM Model of plane truss and space truss.	✓					
4	Analysis of FEM Model of beams.	✓	✓				
5	Analysis of FEM Model of plane and space frame.	✓	✓				
6	Analysis of FEM Model of plane truss and space truss.	✓	✓				
7	Design of beams.	✓	✓	✓			
8	Design of plane and space frame.	✓	✓	✓			
9	Design of plane truss and space truss.	✓	✓	✓			
Class: - B. Tech (Civil) Sem:- VI **Name of Course:-** Water Supply Engineering							

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
1	Determination of pH and alkalinity of water samples.	✓					
2	Determination of Total Hardness and its components of water samples.	✓					
3	Determination of Chlorides of water samples.	✓					
4	Determination of Turbidity and optimum dose of alum for raw water samples.	✓					
5	Determination of optimum dose of chlorine and residual chlorine for water samples.	✓		✓			
6	Site visit – Water Treatment Plant.	✓		✓			
7	Computer applications - Water Treatment.		✓		✓		
8	Computer applications– Analysis of distribution networks.				✓	✓	
9	Draw Layout of water supply in residential buildings.				✓	✓	
10	Water audit of water supply of our institute.				✓		✓
Class: - B. Tech (Civil) Sem:- VI **Name of Course:-** Design and Detailing of Reinforced Concrete Structures							
1	Design of G + 2 (residential/commercial/public) storeys building having minimum floor area of 150 m^2 (for gravity loads only). The design should include all types of slabs, beams, columns, footings and staircase (first and intermediate flight).	✓	✓	✓	✓	✓	✓
2	Report of a site visit related to building under construction	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- VI **Name of Course:-** Project Estimation and Valuation							
1	Estimation of residential building using long wall & short wall method and centre line method.		✓				
2	Detailed estimate of a single storied RCC framed building using D.S.R. rates.	✓	✓				
3	Estimation of quantity of culverts and bridges.		✓				
4	a) Detailed estimate of canal work. b) Assignment on road earthwork calculations.		✓				
5	Draft detailed specifications of any five items of work.			✓			
6	Assignment on Abstracting and Billing.				✓		
7	Prepare Detailed Rate analysis for any five items of work.					✓	

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
8	Carryout detailed valuation on different types of buildings.						✓
9	**Project I:** Calculating quantities of different items using MS excel.		✓		✓		
Class: - B. Tech (Civil) Sem:- VI **Name of Course:-** Vocational Course-IV: Contracts and e-Tendering							
1	Collect essential documents for lump sum and item rate contract	✓					
2	Collect and prepare a note on FIDIC documents		✓				
3	Write a brief summary on procedure of opening of tenders.				✓		✓
4	Write a brief report on Indian Contract Act 1872			✓			
5	Prepare report on tender filling procedure by taking one sample tender.			✓			✓
6	Write a brief summary on procedure of opening of tenders					✓	
7	Write a brief note of license process for various departments					✓	
8	Preparing report on BOT type contract works executed at nearby location.	✓	✓	✓			
Class: - B. Tech (Civil) Sem:- VII **Name of Course:-** Waste Water Treatment and Management							
1	Determination of Solids –Total solids, suspended solids, volatile solids, settleable solids&nonsettleable solids	✓	✓			✓	✓
2	Determination of Dissolved oxygen	✓	✓			✓	✓
3	Determination of Bio-Chemical Oxygen Demand	✓	✓			✓	✓
4	Determination of Chemical Oxygen Demand	✓	✓			✓	✓
5	Determination of Electrical Conductivity	✓	✓			✓	✓
6	Determination of Phosphates by spectrophotometer	✓	✓		✓	✓	✓
7	Determination of Nitrates by spectrophotometer	✓	✓		✓	✓	✓
8	Visit to domestic / Industrial wastewater treatment plant & its detailed reports	✓	✓		✓	✓	✓
9	Application of Arc Gis in Environmental Engineering	✓	✓	✓			
10	Selection of Site for sewage treatment plant by using Arc Gis			✓			
11	Determination of Sludge Volume Index	✓	✓	✓			

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
12	Design of ETP/STP using software	✓	✓	✓			
Class: - B. Tech (Civil) Sem:- VII		**Name of Course:-** Advanced Design of Structures					
	PART-A Term work shall consist of **Any TWO** projects from following						
1	Design of post-tensioned simply supported beams flexure and shear with check for deflection.	✓	✓				
2	Design of flat slab.			✓			
3	Design of retaining walls (T or L).				✓		
4	Design of slab type rectangular combined footing.					✓	
5	Design of Circular water tank.						✓
	PART-B						
1	Visit to construction site and prepare report on it.	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- VII					**Name of Course:-** Project Stage-I		
1	Find out grey area of present condition in a given literature review.	✓					
2	Formulate the objective and scope of the given literature review		✓				
3	Design the methodology to achieve the objective of the project			✓			
4	Organise the resources and recognise the cost of the project work				✓		
5	Compose the planning and coordination of the project work.					✓	
6	Device the arrangement for collection of data and resources required.						✓
Class: - B. Tech (Civil) Sem:- VII		**Name of Course:-** Civil Engineering Software – III (Auto Scan and Auto Steel)					
1	Assignment on different toolbars and menu bars used in Auto Scan	✓	✓	✓			
2	Assignment on flowchart of steps for working process of Auto Scan	✓	✓	✓			
3	Practice problems on Auto Scan	✓	✓	✓			
4	Assignment on different toolbars and menu bars used in Auto Steel	✓	✓	✓			
5	Assignment on flowchart of steps for working process of Auto Steel	✓	✓	✓			
6	Practice problems on Auto Steel	✓	✓	✓			
Class: - B. Tech (Civil) Sem:- VII		**Name of Course:-** Internship					

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
1	Comprehend work process, behave responsibly, and follow rules of organization	✓					
2	Compare and apply knowledge of courses learnt on real life project		✓				
3	Practice work individually and in team.			✓			
4	Manage to plan, estimate, communicate and coordinate to complete the work in scheduled time				✓		
5	Create to learn solution to the problems in context of social, environmental, and legal context.					✓	
6	Justify to use and adopt to modern tools and techniques						✓
Class: - B. Tech (Civil) Sem:- VIII		**Name of Course:**- Seismic Design of Structures					
	The term work shall consist of **all THREE** following practical-						
1	Design of RC Earthquake resistant building using Equivalent Static Method	✓		✓			
2	Design of RC Earthquake resistant building using dynamic Response Spectrum Method	✓	✓		✓		
3	Design of Shear wall for earthquake resistant	✓				✓	✓
Class: - B. Tech (Civil) Sem:- VIII		**Name of Course:**- Hydraulic Structures					
1	Estimation of reservoir capacity using mass inflow curve.	✓					
2	Stability analysis of Gravity dam	✓					
3	Stability analysis of an Earth Dam		✓				
4	Hydraulic design of a ogee spillway and Energy dissipater.			✓			
5	Design of canals				✓		
6	Analysis of a weir on permeable foundation using Khosla's curves.					✓	
7	Typical layout of High head hydropower plant.						✓
8	Design of Guide banks.						✓
9	Site visit report on Irrigation project.	✓	✓	✓	✓	✓	✓
Class: - B. Tech (Civil) Sem:- VIII **Name of Course:**- Construction Quality Control and Safety							
1	Report on construction quality management need for and importance of construction field	✓					
2	Report on construction quality inspection and testing process of material.	✓					

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
3	Report on need for TQM in construction industry		✓				
4	Collect construction Projects Quality Certification for companies and laboratories (ISO Certification, NABL certification)		✓				
5	Report on detail information on ISO Certification and NABL certification		✓				
6	Report on quality standards/codes in design and construction; (ISO:9000),			✓			
7	Report on role of various parties, duties, and responsibilities of safety management			✓			
8	Report on prevention of accidents on construction site				✓		
9	Report on various safety equipment and PPE kit used on site					✓	
10	Report on labour laws, legal requirement, and cost aspects of accidents on site						✓
Class: - B. Tech (Civil) Sem:- VIII **Name of Course:-** Project Stage-II							
1	Combine planning, communication, coordination, and exhibit responsibility to complete given work in time.	✓					
2	Prepare for execution of the process / experiment based on methodology		✓				
3	List the observations and analyse the output / results and validate it.			✓			
4	Illustrate and interpret the results and derive the conclusions				✓		
5	Evaluation and optimisation the solution in social, environmental context.					✓	
6	Preparation of the report and present the work						✓
Class: - B. Tech (Civil) Sem:- VIII **Name of Course:-** Civil Engineering Software – IV (E TABS)							
1	Assignment on different toolbars and menu bars used in ETABS	✓					
2	Assignment on flowchart of steps for design of structure using ETABS	✓					
3	Modelling of structure using ETABS including support, constraints, and releases at joints.	✓					
4	Analysis and Design of Plane Frame using ETABS and validation of results		✓	✓			
5	Analysis and Design of Space Frame using ETABS.		✓	✓			

S.N	Title of Experiment	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6
6	Analysis and Design of Truss using ETABS.		✓	✓			