

SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

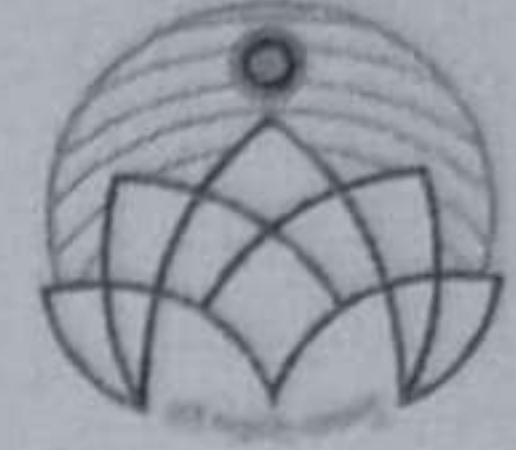
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Vishwothama Nagar, Bantakal - 574 115, Udupi District, Karnataka

DEPARTMENT OF CIVIL ENGINEERING



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Course Outcome Statements of 2018 Scheme

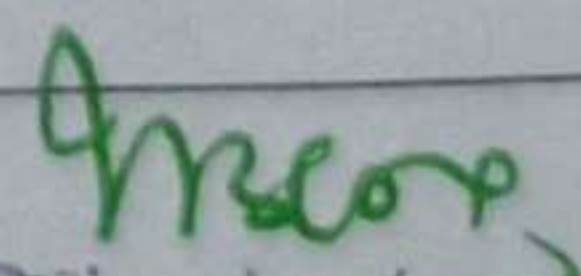
The below table represents the 2018 Scheme Course Outcome Statements of the courses offered from 3rd semester to 8th semester of Civil Engineering.

3rd Semester

Course Name	Transform Calculus, Fourier Series and Numerical Techniques
Course Code	18MAT31
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Use Laplace transform and inverse Laplace transform in solving differential/ integral equation arising in network analysis, control systems and other fields of engineering.
CO2	Demonstrate Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
CO3	Use Fourier transform and Z-transform in discrete/continuous function arising in wave and heat propagation, signals and systems.
CO4	Use single step and multistep numerical methods to solve first and second order ordinary differential equations arising in engineering problems .
CO5	Determine the externals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

Course Name	Strength of Materials
Course Code	18CV32
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	To evaluate the basic concepts of the stresses and strains for different materials and strength of structural elements.
CO2	To evaluate the development of internal forces and resistance mechanism for one dimensional and two dimensional structural elements.
CO3	To analyze different internal forces and stresses induced due to representative loads on structural elements.
CO4	To evaluate slope and deflections of beams.
CO5	To evaluate the behavior of torsion members, columns and struts.

Course Name	Fluid Mechanics
Course Code	18CV33
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Possess a sound knowledge of fundamental properties of fluids and fluid Continuum
CO2	Compute and solve problems on hydrostatics, including practical applications
CO3	Apply principles of mathematics to represent kinematic concepts related to fluid flow


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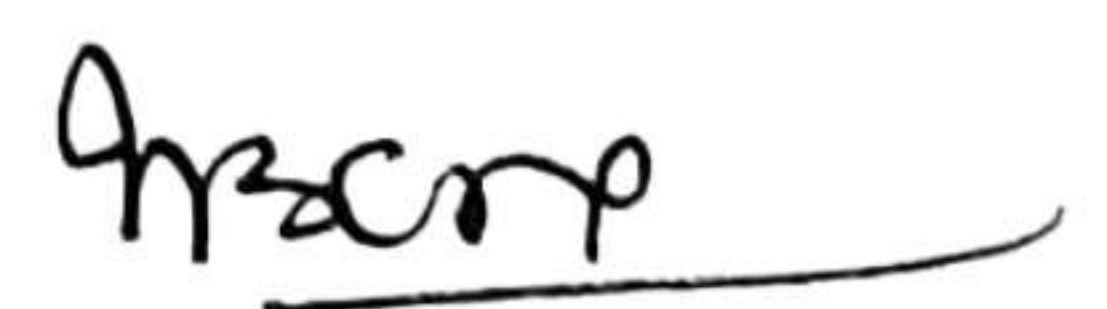
CO4	Apply fundamental laws of fluid mechanics and the Bernoulli's principle for practical applications
CO5	Compute the discharge through pipes and over notches and weirs

Course Name	Building Materials and Construction
Course Code	18CV34
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Select suitable materials for buildings and adopt suitable construction techniques
CO2	Decide suitable type of foundation based on soil parameters
CO3	Supervise the construction of different building elements based on suitability
CO4	Exhibit the knowledge of building finishes and form work requirements

Course Name	Surveying
Course Code	18CV35
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Posses a sound knowledge of fundamental principles Geodetics
CO2	Capture geodetic data to process and perform analysis for survey problems
CO3	Analyse the obtained spatial data and compute areas and volumes. Represent 3D data on plane figures as contours
CO4	To Analyze the obtained spatial data to compute areas and volumes and draw contours to represent 3D data on plane figures.

Course Name	Engineering Geology
Course Code	18CV36
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply geological knowledge in different civil engineering practice.
CO2	Acquire knowledge on durability and competence of foundation rocks, and will be able to use the best building materials.
CO3	Students will become competent enough for the safety, stability, economy and life of the structures that they construct
CO4	Able to solve various issues related to ground water exploration, build up dams, bridges, tunnels which are often confronted with ground water problems
CO5	Students will become Intelligent enough to apply GIS, GPS and remote sensing as a latest tool in different civil engineering for safe and solid construction.

Course Name	Computer Aided Building Planning & Drawing
Course Code	18CV36
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Prepare, read and interpret the drawings in a professional set up.
CO2	Know the procedures of submission of drawings and Develop working and submission drawings for building.
CO3	Plan and design residential or public buildings as per the given requirements.



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Course Name	Building Material Testing Labouratory
Course Code	18CVL38
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Reproduce the basic knowledge of mathematics and engineering in finding the strength in tension, compression, shear and torsion.
CO2	Identify, formulate and solve engineering problems of structural elements subjected to flexure.
CO3	Evaluate the impact of engineering solutions on the society and also will be aware of contemporary issues regarding failure of structures due to unsuitable materials.

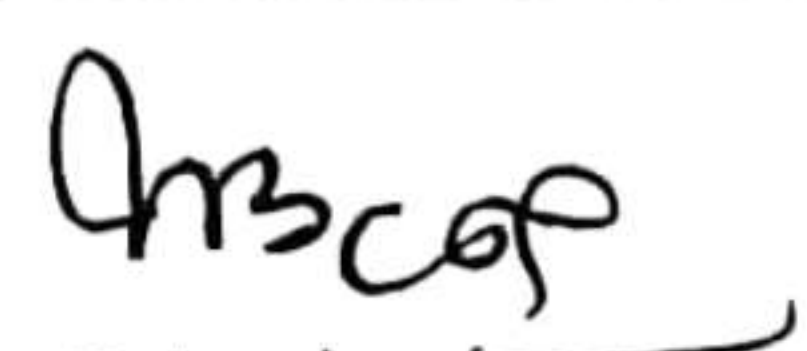
4th Semester

Course Name	Mathematics
Course Code	18MAT41
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	To provide an insight into applications of complex variables, conformal mapping and special functions arising in potential theory, quantum mechanics, heat conduction and field theory.
CO2	To develop probability distribution of discrete, continuous random variables and joint probability distribution occurring in digital signal processing, design engineering and microwave engineering.

Course Name	Analysis of Determinate Structures
Course Code	18CV42
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Identify different forms of structural systems.
CO2	Construct ILD and analyze the beams and trusses subjected to moving loads
CO3	Understand the energy principles and energy theorems and its applications to determine the deflections of trusses and beams.
CO4	Determine the stress resultants in arches and cables.

Course Name	Applied Hydraulics
Course Code	18CV43
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply dimensional analysis to develop mathematical modeling and compute the parametric values in prototype by analyzing the corresponding model parameters
CO2	Design the open channels of various cross sections including economical channel sections
CO3	Apply Energy concepts to flow in open channel sections, Calculate Energy dissipation
CO4	Design turbines for the given data, and to know their operation characteristics under different operating conditions

Course Name	CONCRETE TECHNOLOGY
Course Code	18CV44
Course Outcomes(COs): At the end of the course the student will be able to :	


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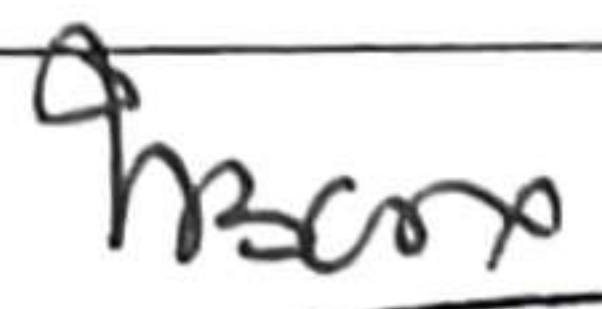
CO1	Relate material characteristics and their influence on microstructure of concrete.
CO2	Distinguish concrete behavior based on its fresh and hardened properties.
CO3	Illustrate proportioning of different types of concrete mixes for required fresh and hardened properties using professional codes
CO4	Adopt suitable concreting methods to place the concrete based on requirement
CO5	Select a suitable type of concrete based on specific application.

Course Name	Advanced Surveying
Course Code	18CV45
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply the knowledge of geometric principles to arrive at surveying problems
CO2	Use modern instruments to obtain geo-spatial data and analyse the same to appropriate engineering problems
CO3	Capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments;
CO4	Design and implement the different types of curves for deviating type of alignments.

Course Name	Water Supply & Treatment Engineering
Course Code	18CV46
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Estimate average and peak water demand for a community.
CO2	Evaluate available sources of water, quantitatively and qualitatively and make appropriate choice for a community
CO3	Evaluate water quality and environmental significance of various parameters and plan suitable treatment system.
CO4	Design a comprehensive water treatment and distribution system to purify and distribute water to the required quality standards.

Course Name	Engineering Geology Laboratory
Course Code	18CVL47
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	The students are able to identify the minerals, rocks and utilize them effectively in civil engineering practices.
CO2	The students will interpret and understand the geological conditions of the area for implementation of Civil engineering projects.
CO3	The students will interpret subsurface information such as thickness of soil, weathered zone, depth of hard rock and saturated zone by using geophysical methods.

Course Name	Fluid Mechanics and Hydraulics Machines Laboratory
Course Code	18CVL48
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Properties of fluids and the use of various instruments for fluid flow measurement.


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CO2	Working of hydraulic machines under various conditions of working and their characteristics.
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5th Semester

Course Name	Construction Management & Entrepreneurship
Course Code	18CV51
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Prepare a project plan based on requirements and prepare schedule of a project by understanding the activities and their sequence.
CO2	Understand labour output, equipment efficiency to allocate resources required for an activity / project to achieve desired quality and safety.
CO3	Analyze the economics of alternatives and evaluate benefits and profits of a construction activity based on monetary value and time value
CO4	Establish as an ethical entrepreneur and establish an enterprise utilizing the provisions offered by the federal agencies

Course Name	Analysis of Indeterminate Structures
Course Code	18CV52
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Determine the moment in indeterminate beams and frames having variable moment of inertia and subsidence using slope deflection method.
CO2	Determine the moment in indeterminate beams and frames of no sway and sway using moment distribution method.
CO3	Construct the bending moment diagram for beams and frames by Kani's method.
CO4	Construct the bending moment diagram for beams and frames using flexibility method.
CO5	Analyze the beams and indeterminate frames by system stiffness method.

Course Name	Design of RC Structural Elements
Course Code	18CV53
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Understand the design philosophy and principles.
CO2	Solve engineering problems of RC elements subjected to flexure, shear and torsion.
CO3	Demonstrate the procedural knowledge in designs of RC structural elements such as slabs, columns and footings.
CO4	Owens professional and ethical responsibility.

Course Name	Basic Geotechnical Engineering
Course Code	18CV54
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	To understand the procedures to determine index properties of any type of soil, classify the soil based on its index properties.
CO2	To determine compaction characteristics, soil structures and apply that knowledge to assess field compaction procedures

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CO3	To be able to determine permeability properties of soils and acquire conceptual knowledge about stresses due to seepage and effective stress; Also acquire ability to estimate seepage losses across hydraulic structure hydraulic structure.
CO4	To estimate shear strength parameters of different types of soils using the data of different shear tests and comprehend Mohr-Coulomb failure theory.
CO5	To estimate shear strength parameters of different types of soils using the data of different shear tests and comprehend Mohr-Coulomb failure theory.

Course Name	Municipal & Industrial Wastewater Engineering
Course Code	18CV55
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Select the appropriate sewer appurtenances and materials in sewer network.
CO2	Design the sewers network and understand the self purification process in flowing water
CO3	Design the various physico-chemical treatment units
CO4	Design the various biological treatment units
CO5	Design various AOPs and low cost treatment units

Course Name	Highway Engineering
Course Code	18CV56
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Acquire the capability of proposing a new alignment or re-alignment of existing roads, conduct necessary field investigation for generation of required data
CO2	Analyze the engineering properties of the highway alignment and design the geometrical parameters of the pavement.
CO3	Understand the materials of pavement and Design road geometrics, structural components of pavement.
CO4	Understand the construction methods of pavement and properties of different layers

Course Name	Surveying Practice
Course Code	18CVL57
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply the basic principles of engineering surveying and measurements
CO2	Comprehend effectively field procedures required for professional surveyor.
CO3	Use techniques, skills and conventional surveying instruments necessary for reengineering practice.

Course Name	Concrete and Highway Laboratory
Course Code	18CVL58
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Able to interpret the experimental results of concrete and highway materials based on laboratory tests
CO2	Determine the quality and suitability of cement.


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CO3	Design appropriate concrete mix Using Professional codes.
CO4	Determine strength and quality of concrete

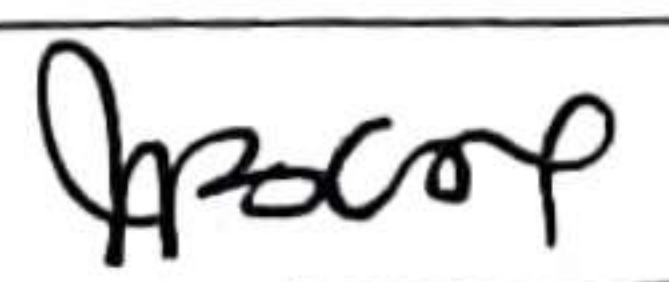
Course Name	Environmental Studies
Course Code	18CIV59
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
CO2	Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
CO3	Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.
CO4	Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

6th Semester

Course Name	Design of Steel Structural Elements
Course Code	18CV61
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Possess knowledge of Steel Structures Advantages and Disadvantages of Steel structures, steel code provisions and plastic behavior of structural steel.
CO2	Understand the Concept of Bolted and Welded connections.
CO3	Understand the Concept of Design of compression members, built-up columns and columns splices.
CO4	Understand the Concept of Design of tension members, simple slab base and gusseted base.
CO5	Understand the Concept of Design of laterally supported and un- supported steel beams.

Course Name	Applied Geotechnical Engineering
Course Code	18CV62
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Ability to plan and execute geotechnical site investigation program for different civil engineering projects
CO2	Understanding of stress distribution and resulting settlement beneath the loaded footings on sand and clayey soils
CO3	Ability to estimate factor of safety against failure of slopes and to compute lateral pressure distribution behind earth retaining structures
CO4	Ability to determine bearing capacity of soil and achieve proficiency in proportioning shallow isolated and design combined footings for uniform bearing pressure
CO5	Capable of estimating load carrying capacity of single and group of piles

Course Name	Hydrology and Irrigation Engineering
Course Code	18CV63
Course Outcomes(COs): At the end of the course the student will be able to :	


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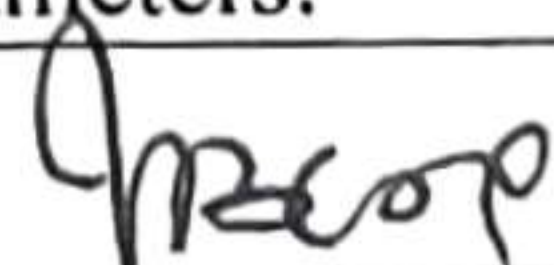
CO1	Understand the importance of hydrology and its components.
CO2	Measure precipitation and analyze the data and analyze the losses in precipitation.
CO3	Estimate runoff and develop unit hydrographs.
CO4	Find the benefits and ill-effects of irrigation.
CO5	Find the quantity of irrigation water and frequency of irrigation for various crops.

Course Name	Professional Elective -1- ALTERNATE BUILDING MATERIALS
Course Code	18CV643
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Solve the problems of Environmental issues concerned to building materials and cost effective building technologies;
CO2	Select appropriate type of masonry unit and mortar for civil engineering constructions;
CO3	Analyse different alternative building materials which will be suitable for specific climate and in an environmentally sustainable manner
CO4	Recommend various types of alternative building materials and technologies and design a energy efficient building by considering local climatic condition and building material.

Course Name	Open Elective -A- OCCUPATIONAL HEALTH AND SAFETY
Course Code	18CV653
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Identify hazards in the workplace that pose a danger or threat to their safety or health, or that of others.
CO2	Present a coherent analysis of a potential safety or health hazard both verbally and in writing, citing the occupational Health and Safety Regulations as well as supported legislation.
CO3	Discuss the role of health and safety in the workplace pertaining to the responsibilities of workers, managers, supervisors
CO4	Identify the decisions required to maintain protection of the environment, workplace as well as personal health and safety

Course Name	Software Application Laboratory
Course Code	18CVL66
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Use the Microsoft excel software to prepare the programmed spreadsheet to solve the civil engineering problems.
CO2	Use the Project management software to plan and schedule of a building project and evaluate the various management parameters.
CO3	Use the software for the analysis of structural members for the given loading condition.

Course Name	Environmental Engineering Laboratory
Course Code	18CVL67
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Acquire capability to conduct experiments and estimate the concentration of different parameters.


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CO2	Compare the result with standards and discuss based on the purpose of analysis
CO3	Determine type of treatment, degree of treatment for water and waste water.
CO4	Identify the parameter to be analyzed for the student project work in environmental stream

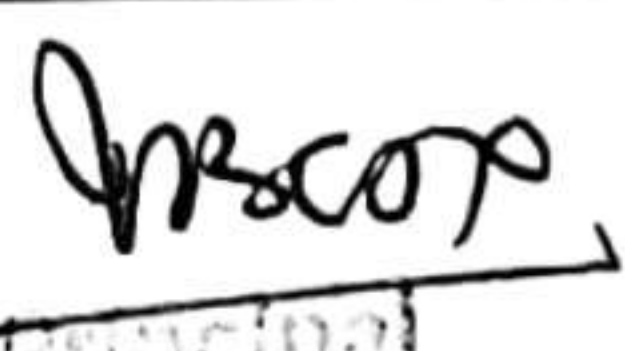
Course Name	Extensive Survey project
Course Code	18CVEP68
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply Surveying knowledge and tools effectively for the projects
CO2	Understanding Task environment, Goals, responsibilities, Task focus, working in Teams towards common goals, Organizational performance expectations, technical and behavioral competencies.
CO3	Application of individual effectiveness skills in team and organizational context, goal setting, time management, communication and presentation skills.
CO4	Professional etiquettes at workplace, meeting and general
CO5	Establishing trust based relationships in teams & organizational environment.
CO6	Orientation towards conflicts in team and organizational environment, Understanding sources of conflicts, Conflict resolution styles and techniques

7th Semester

Course Name	Quality Surveying & Contract Management
Course Code	18CV71
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Taking out quantities and work out the cost and preparation of abstract for the estimated cost for various civil engineering works.
CO2	Prepare detailed and abstract estimates for various road works, structural works and water supply and sanitary works
CO3	Prepare the specifications and analyze the rates for various items of work.
CO4	Assess contract and tender documents for various construction works.
CO5	Prepare valuation reports of buildings.

Course Name	Design of RCC and Steel Structural Elements
Course Code	18CV72
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Students will acquire the basic knowledge in design of RCC and Steel Structures.
CO2	Students will have the ability to follow design procedures as per codal provisions and skills to arrive at structurally safe RC and Steel members.

Course Name	Professional Elective - 2- AIR POLLUTION AND CONTROL
Course Code	18CV732
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Identify the major sources of air pollution and understand their effects on health and environment


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CO2	Evaluate the dispersion of air pollutants in the atmosphere and to develop air quality models.
CO3	Ascertain and evaluate sampling techniques for atmospheric and stack pollutants.
CO4	Choose and design control techniques for particulate and gaseous emissions

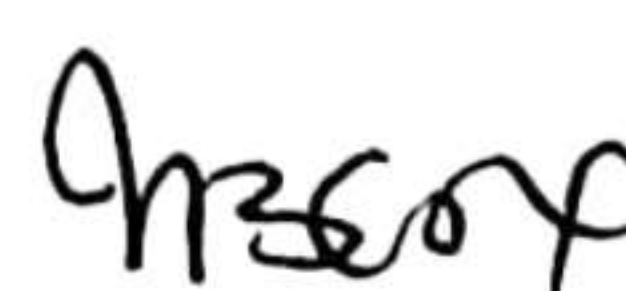
Course Name	Professional Elective - 3- URBAN TRANSPORT PLANNING
Course Code	18CV745
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Design, conduct and administer surveys to provide the data required for transportation planning.
CO2	Supervise the process of data collection about travel behavior and analyze the data for use in transport planning
CO3	Develop and calibrate modal split, trip generation rates for specific types of land use developments.
CO4	Adopt the steps that are necessary to complete a long-term transportation plan.

Course Name	Open Elective -B- ENVIRONMENTAL PROTECTION AND MANAGEMENT
Course Code	18CV753
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards.
CO2	Lead pollution prevention assessment team and implement waste minimization options.
CO3	Develop, Implement, maintain and Audit Environmental Management systems for Organizations.

Course Name	Computer Aided Detailing of Structures
Course Code	18CVL76
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Students will acquire the basic knowledge in design of RCC and Steel Structures.
CO2	Students will have the ability to follow design procedures as per codal provisions and prepare detailed working drawings.

Course Name	Geotechnical Engineering Laboratory
Course Code	18CVL77
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	To understand the physical, index properties and to classify the soil.
CO2	To determine compaction characteristics, plan and assess field compaction program
CO3	To be able to determine permeability property of soils and to determine parameters to assess strength deformation characteristics the in situ shear strength characteristics(SPT- Demonstration)

Course Name	Project Work Phase - 1
Course Code	18XXP78
Course Outcomes(COs): At the end of the course the student will be able to :	


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CO1	Think and create. Use multiple thinking strategies to examine real-world issues, explore
CO2	Learn and integrate. Through independent learning and collaborative study, attain, use, and develop knowledge.
CO3	Communicate. Acquire, articulate, create and convey intended meaning using verbal and non-verbal method of communication that demonstrates respect and understanding in a complex society,

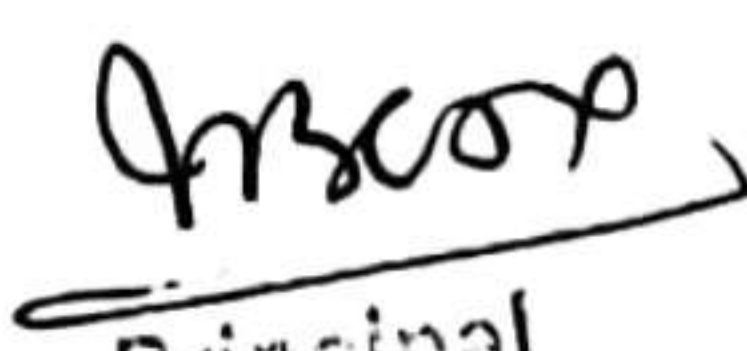
8th Semester

Course Name	Design of PSC
Course Code	18CV81
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Understand the requirement of PSC members for present scenario.
CO2	Analyse the stresses encountered in PSC element during transfer and at working.
CO3	Understand the effectiveness of the design of PSC after studying losses.
CO4	Capable of analyzing the PSC element and finding its efficiency.
CO5	Design PSC beam for different requirements.

Course Name	Professional Elective - 4- PAVEMENT DESIGN
Course Code	18CV825
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Systematically generate and compile required data's for design of pavement (Highway & Airfield).
CO2	Analyze stress, strain and deflection by boussinesq's, bur mister's and westergaard's theory
CO3	Design rigid pavement and flexible pavement conforming to IRC58-2002 and IRC37-2001.
CO4	Evaluate the performance of the pavement and also develops maintenance statement based on site specific requirements.

Course Name	Project Work Phase - 2
Course Code	18CVP83
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Think and create. Use multiple thinking strategies to examine real-world issues, explore
CO2	Learn and integrate. Through independent learning and collaborative study, attain, use, and develop knowledge.
CO3	Communicate. Acquire, articulate, create and convey intended meaning using verbal and non-verbal method of communication that demonstrates respect and understanding in a complex society,

Course Name	Technical Seminar
Course Code	18CVS84
Course Outcomes(COs): At the end of the course the student will be able to :	


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CO1	Apply the fundamental engineering concepts to solve engineering problems
CO2	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current
CO3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear
CO4	Create engineering-standard figures, reports and drawings to complement writing and presentations

Course Name	Internship
Course Code	18CVI85
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Practical exposure and learn and gain knowledge in the organization
CO2	Enhance their communication by meeting new people and work as a team
CO3	Practice time management and perform multitasking
CO4	Sort out and compile their work throughout their internship

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Course Outcome Statements of 2021 Scheme

The below table represents the 2021 Scheme Course Outcome Statements of the courses offered from 3rd semester to 5th semester of Civil Engineering.

Course Name	Transform Calculus, Fourier Series and Numerical Techniques
Course Code	21MAT 31
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	To solve ordinary differential equations using Laplace transform.
CO2	Demonstrate the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
CO3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
CO4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
CO5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

Course Name	Strength of Materials
Course Code	21CV33
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Evaluate the behavior when a solid material is subjected to various types of forces (namely Compressive, Tensile, Thermal, Shear, flexure, Torque, internal fluid pressure) and estimate stresses and corresponding strain developed.
CO2	Estimate the forces developed and draw schematic diagram for stresses, forces, moments for simple beams with different types of support and are subjected to various types of loads.
CO3	Evaluate the behavior when a solid material is subjected to Torque and internal fluid pressure and estimate stresses and corresponding strain developed.
CO4	Distinguish the behavior of short and long column and calculate load at failure & explain the behavior of spring to estimate deflection and stiffness
CO5	Examine and Evaluate the mechanical properties of various materials under different loading conditions.

Course Name	Geodetic Engineering
Course Code	21CV32
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Execute survey using compass and plane table
CO2	Find the level of ground surface and Calculation of area and volumes
CO3	Operate theodolite for field execution
CO4	Estimate the capacity of reservoir

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CO5	Interpret satellite imageries
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Course Name	Earth Resources and Engineering
Course Code	21CV34
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply geological knowledge in different civil engineering practice.
CO2	Students will acquire knowledge on durability and competence of foundation rocks, and confidence enough to use the best building materials
CO3	competent enough to provide services for the safety, stability, economy and life of the structures that they construct
CO4	Able to solve various issues related to ground water exploration, build up dams, bridges, tunnels which are often confronted with ground water problems
CO5	Intelligent enough to apply GIS, GPS and remote sensing as a latest tool in different civil engineering for safe and solid construction.

Course Name	COMPUTER AIDED BUILDING PLANNING AND DRAWING
Course Code	21CVL35
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Prepare, read and interpret the drawings in a professional set up.
CO2	Know the procedures of submission of drawings and Develop working and submission drawings for building
CO3	Plan and design of residential or public building as per the given requirements.

Course Name	Microsoft Excel and Visual Basic for Applications
Course Code	21CV382
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Solve Trigonometric, Logarithmic, Exponential, Statistical problems and perform Matrix operations
CO2	Solve civil engineering problems using VB as a tool
CO3	Design structural elements by integrating excel and VB

Course Name	Fluid Mechanics and Hydraulics
Course Code	21CV42
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Understand fundamental properties of fluids and solve problems on Hydrostatics
CO2	Apply Principles of Mathematics to represent Kinematics and Bernoulli's principles

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CO3	Compute discharge through pipes, notches and weirs
CO4	Design of open channels of various cross sections
CO5	Design of turbines for the given data and understand their operation characteristics

Course Name	PUBLIC HEALTH ENGINEERING
Course Code	21CV43
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Evaluate slope and deflections in beams using geometrical methods.
CO2	Determine deflections in trusses and frames using energy principles
CO3	Analyse arches and cables for stress resultants.
CO4	Apply slope deflection method in analysing indeterminate structures and construct bending moment diagram.
CO5	Analyse continuous beams, frames and trusses using stiffness matrix method of analysis.

Course Name	Earth Resources and Engineering Laboratory
Course Code	21CVL46
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Comprehend the relations between minerals and rocks based on their physical properties
CO2	Assess the suitability of materials used in building construction
CO3	Differentiate geological investigations necessary for the construction of dams, bridges, and tunnels
CO4	Describe the groundwater investigation using resistivity methods
CO5	Understand the applications of Geospatial technology in Civil Engineering.

Course Name	Analysis of Structures
Course Code	21CV44
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Evaluate slope and deflections in beams using geometrical methods.
CO2	Determine deflections in trusses and frames using energy principles
CO3	Analyse arches and cables for stress resultants.
CO4	Apply slope deflection method in analysing indeterminate structures and construct bending moment diagram.
CO5	Analyse continuous beams, frames and trusses using stiffness matrix method of analysis.

Course Name	Hydrology and Water Resource Engineering
Course Code	21CV51

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Code	
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Provide a background in the theory of hydrological processes and their measurement
CO2	Estimate runoff and develop unit hydrographs.
CO3	Find the water requirement and frequency of irrigation for various crops.
CO4	Analyse floods and droughts. Emphasise on the importance of conservation of water and water bodies

Course Name	TRANSPORTATION ENGINEERING
Course Code	21CV52
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Acquire the capability of proposing a new alignment or re-alignment of existing roads, conduct necessary field investigation for generation of required data
CO2	Evaluate the engineering properties of the materials and suggest the suitability of the same for pavement construction
CO3	Design road geometrics, structural components of pavement and drainage
CO4	Evaluate the highway economics by few select methods and also will have a basic knowledge of various highway financing concepts

Course Name	DESIGN OF RC STRUCTURAL ELEMENTS
Course Code	21CV53
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Understand the design philosophy and principles.
CO2	Solve engineering problems of RC elements subjected to flexure, shear and torsion
CO3	Demonstrate the procedural knowledge in designs of RC structural elements such as slabs, columns and footings.
CO4	Owens professional and ethical responsibility.

Course Name	GEOTECHNICAL ENGINEERING
Course Code	21CV54
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Physical and index properties of the soil
CO2	Classify based on index properties and field identification
CO3	To determine OMC and MDD, plan and assess field compaction program
CO4	Shear strength and consolidation parameters to assess strength and deformation characteristics
CO5	In-situ shear strength characteristics(SPT-Demonstration)

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Course Name	Environmental Studies
Course Code	21CIV57
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Realize the importance of quality in construction
CO2	Apply SQC techniques in different aspects of construction
CO3	Implement QMS programs at different levels of construction

Princip

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Course Outcome Statements of 2022 Scheme

The below table represents the 2022 Scheme Course Outcome Statements of the courses offered for 3rd semester of Civil Engineering.

Course Code	BCV301
Course Name	Strength of Materials
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Evaluate the simple stresses, strains and compound stresses
CO2	Calculate the Bending moments, shear force and draw BMD, SFD for various types of beams and loadings
CO3	Analyse the bending stress, shear stress and torsional stress in beams and shafts with different cross sections
CO4	Evaluate the deflection in beams and determine the stability of the columns.
CO5	Evaluate the behaviour and strength of structural elements under the action of compound stresses and stresses in thin and thick cylinders

Course Code	BCV302
Course Name	Engineering Survey
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Summarize various types of surveying and carry out distance measurement using various equipment's
CO2	Illustrate the use and applications of levelling and theodolite
CO3	Plot contours, longitudinal and cross sections for construction projects.
CO4	Set curves for construction works and carry out estimation of areas and volumes.
CO5	Demonstrate the necessary skills to carry out GPS and DRONE Surveying

Course Code	BCV303
Course Name	Engineering Geology
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Apply geological knowledge in different civil engineering practice
CO2	Acquire knowledge on durability and competence of foundation rocks, and will be able to use the best building materials.
CO3	Students will become competent enough for the safety, stability, economy and life of the structures that they construct
CO4	Able to solve various issues related to ground water exploration, build up dams, bridges, tunnels which are often confronted with ground water problems
CO5	Students will become Intelligent enough to apply GIS, GPS and remote sensing as a latest tool in different civil engineering for safe and solid construction.

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Course Code	BCV304
Course Name	Water Supply and Waste Water Engineering
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Estimate the average and peak water demand for a community.
CO2	Evaluate water quality and environmental significance of various parameters and plan suitable treatment system.
CO3	Design the different units of water treatment plant.
CO4	Design the various units of wastewater treatment plant.
CO5	Design of various AOPs and low cost treatment units.

Course Code	BCV305
Course Name	Computer Aided Building Planning and Drawing
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Prepare, read and interpret the drawings in a professional set up.
CO2	Know the procedures of submission of drawings and Develop working and submission drawings for building.
CO3	Plan of residential or public building as per the given requirements.

Course Code	BCV306C
Course Name	Sustainable Design Concept for Building Services
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Comprehend sustainable design, climatology, shading system and analyze heat transfer mechanism in buildings.
CO2	Assess the design considerations and parameters for thermal comfort, visual comfort, indoor air quality and acoustics.
CO3	Develop solutions for energy efficiency, water efficiency and waste management in buildings.
CO4	Adopt green project management methodology and evaluate building life cycle assessment.
CO5	Implement green practices during construction and operation phase of the buildings for achieving green rating.

Course Code	BCV358D
Course Name	Personality Development for Civil Engineers
Course Outcomes(COs): At the end of the course the student will be able to :	
CO1	Use English as a medium of communication in interviews and in any professional working environment proficiently
CO2	Develop necessary skills to Answer common interview questions, express confidence in body language and present with clarity


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