



**Karnatak Law Society's**  
**Vishwanathrao Deshpande Institute of Technology**

Approved by AICTE, New Delhi, Affiliated to VTU, Belagavi  
Recognized under Section 2(f) of the UGC Act, 1956  
Udyog Vidyanagar, Dandeli Road, HALIYAL – 581329 District- Uttara Kannada  
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**DEPARTMENT OF CIVIL ENGINEERING**

**CO Statement 2019-23**

CO Statement	
CO's	
<b>18CV101</b>	<b>Calculus and Linear Algebra</b>
CO1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve
CO2	Learn the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
CO3	Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing the area and volumes
CO4	Solve first order linear/non linear differential equations analytically using standard methods
CO5	Make use of Matrix theory for solving system of linear equations and compute Eigenvalues & Eigenvectors required for matrix diagonalization process
<b>18CV102</b>	<b>Engineering Physics</b>
CO1	Learn and understand various types of oscillations and their implications, Recognize the significance of shock waves and its applications in various fields
CO2	To get acquainted with the elastic properties of materials by understanding the definitions of elasticity, stress, strain, modulus of rigidity, Young's modulus, bulk modulus and elastic limit.
CO3	To realize the interrelation between time varying electric field and magnetic field, properties of electromagnetic (EM) waves, Maxwell's equations and their role in optical fiber communication.
CO4	Gain knowledge of the intricacies of matter and energy, which is essential to explore the role of subatomic particles in understanding properties of matter at macro, micro and nano level using the principles of quantum mechanics and to understand the physics of lasers, various types of lasers and to appreciate their role in modern technology.
CO5	Learn the niceties of technologically important material such as conductor, semiconductor and dielectrics, their potential properties in understanding their use in engineering applications
<b>18CV103</b>	<b>Basic Electrical Engineering</b>
CO1	Students will be able to comprehend the basic concept of AC and DC circuit
CO2	Explain the working principle and construction of AC and DC machines
CO3	Explain the working principle and construction of transformer
CO4	Understand the electrical wiring concepts, earthing, domestic protection devices and electric shock
<b>18CV104</b>	<b>Elements of Civil Engineering &amp; Mechanics</b>
CO1	Mention the applications of various fields of Civil Engineering
CO2	Compute the resultant of given force system subjected to various loads
CO3	Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads.
CO4	Locate the Centroid and compute the Moment of Inertia of regular and built-up sections
CO5	Express the relationship between the motion of bodies and analyze the bodies in motion.
<b>18CV105</b>	<b>Engineering Graphics</b>
CO1	Prepare engineering drawings as per BIS conventions mentioned in the relevant codes
CO2	Produce computer generated drawings using CAD software.
CO3	Use the knowledge of orthographic projections to represent engineering information / concepts and present the same in the form of drawings
CO4	Develop isometric drawings of simple objects reading the orthographic projections of those objects.
CO5	Convert pictorial and isometric views of simple objects to orthographic views.
<b>18CV106</b>	<b>Engineering Physics Laboratory</b>
CO1	To recognize the importance of light by exploring its interaction with matter and in realizing its characteristic properties.
CO2	Understanding of mechanical properties of the material by the application of stress
CO3	Appreciating the significance of elementary electric circuits in the functioning of various electric /electronic devices and gaining understanding of physics of the materials.
CO4	Design and implementation of electronic circuits to gain better understanding of physics of semiconductor devices
CO5	Appreciating the role of Quantum Mechanics in exploring the electrical properties of the materials.

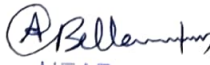


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<b>18CV107</b>	<b>Basic Electrical Engineering Laboratory</b>
CO1	Identifying the common electrical components and measuring instruments used for conducting experiments in electrical laboratory.
CO2	Determine the current, power drawn and comparing power factor of the different lamps
CO3	Determine impedance of an electrical circuit and power consumed in a 3 phase load.
CO4	Determine the earth resistance and understand the operation of two way and three way control of lamp.
CO5	Understand the basic functioning of domestic appliances like fuse, MCB, UPS
<b>18CV109</b>	<b>Advanced Calculus and Numerical Methods</b>
CO1	To solve first order linear/nonlinear differential equations analytically using standard methods
CO2	Explain various physical models through higher order differential equations and solve such linear ordinary differential equations
CO3	Understand a variety of partial differential equations and solution by exact methods/method of separation of variables
CO4	Describe the applications of infinite series and obtain series solution of ordinary differential equations
CO5	Apply the knowledge of numerical methods in the models of various physical and engineering phenomena
<b>18CV110</b>	<b>Engineering Chemistry</b>
CO1	Knowledge on the use of free energy in equilibria, rationalize bulk properties and processes using thermodynamic considerations, electrochemical energy systems.
CO2	Knowledge on the causes and effects of corrosion of metals and control of corrosion. Modification of the surface properties of metals to develop resistance to corrosion, wear, tear, impact, etc. by electroplating and electroless plating.
CO3	Knowledge on the importance of energy conservation in the context of energy crisis, fuel properties and importance of solar energy as sustainable source and PV cells for solar energy conversion.
CO4	Knowledge on the environmental pollution, waste management and water chemistry.
CO5	Knowledge on the different techniques of instrumental methods of analysis. Fundamental properties of nanomaterials.
<b>18CV111</b>	<b>C Programming for Problem Solving</b>
CO1	Illustrate simple algorithms from the different domains such as mathematics, physics, etc.
CO2	Construct a programming solution to the given problem using C.
CO3	Identify and correct the syntax and logical errors in C programs.
CO4	Modularize the given problem using functions and structures.
<b>18CV112</b>	<b>Basic Electronics</b>
CO1	Outline the operation of semiconductor diodes, and its applications like rectifiers, photocouplers, and fixed voltage ic regulator and apply the concepts to solve the numerical of rectifiers
CO2	Describe the general operating principles of jfets, mosfets, scr, by applying their concepts to various applications.
CO3	List the characteristics of the opamp and describe the operations of simple opamp circuits and apply the same concepts to solve the numerical
CO4	By outlining the characteristics of feedback amplifiers explain different types of feedback along with the working of bjt amplifiers, and apply the concept of barkhausen's criteria to obtain the oscillations.
CO5	Explain the different number system and their conversions and construct simple combinational and sequential logic circuits using flip flops.
CO6	Describe the basic principle of operation of communication system and mobile phones.
<b>18CV113</b>	<b>Elements of Mechanical Engineering</b>
CO1	learn the fundamental concepts of energy, it's sources and conversion
CO2	comprehend the basic concepts of thermodynamics
CO3	understand the concepts of boilers, turbines,pumps,internal combustion engine and refrigeration
CO4	distinguish different metal joining techniques and power transmission
CO5	enumerate the knowledge of working with conventional machine tools, their specifications and advanced manufacturing processes.
<b>18CV114</b>	<b>Engineering Chemistry Laboratory</b>
CO1	Students will have the knowledge in handling different types of instruments for analysis of materials using small quantities of materials involved for quick and accurate results
CO2	Students will have the knowledge in carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results
<b>18CV115</b>	<b>C Programming Laboratory</b>
CO1	Write algorithms, flowcharts and program for simple programs.
CO2	Correct syntax and logical errors to execute a program.
CO3	Write iterative and wherever possible recursive programs.
CO4	Demonstrate use of functions, arrays, strings, structures and pointers in problem solving.



  
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**Transform Calculus, Fourier Series and Numerical Techniques 18MAT31**

COURSE OUTCOMES

- CO1 To understand the concept of Laplace transform and inverse Laplace transform and its properties
- CO2 To understand the behaviour of periodic functions using Fourier series
- CO3 To illustrate discrete/continuous functions using Fourier transform and Z-transform
- CO4 To determine the solution of ODE by using Numerical techniques
- CO5 To determine the extremals of functionals using calculus of variations

**18CV201 Strength of Materials 18CV32**

COURSE OUTCOMES

- CO1 To evaluate the basic concepts of the stresses and strains for different materials and strength of structural elements.  
To evaluate the development of internal forces and resistance mechanism for one dimensional and two dimensional structural elements.
- CO2
- CO3 To analyse 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.

**18CV202 Fluid Mechanics 18CV33**

COURSE OUTCOMES

- CO1 The Fundamental properties of fluids and its applications
- CO2 The basic flow rate measurements.
- CO3 Apply principles of mathematics to represent kinematic concepts related to fluid flow
- CO4 Compute the discharge through venturimeter
- CO5 Compute the discharge through pipes and over notches and weirs

**18CV203 Building Materials and Construction 18CV34**

COURSE OUTCOMES

- 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

**18CV204 Basic Surveying 18CV35**

COURSE OUTCOMES

- CO1 Understand the basic principles of Surveying
- CO2 Learn Linear and Angular measurements to arrive at solutions to basic surveying problems
- CO3 Employ conventional surveying data capturing techniques and process the data for computations.
- CO4 Analyze the obtained spatial data to compute areas and volumes and draw contours to represent 3D data on plane figures.

**18CV205 Engineering Geology 18CV36**

COURSE OUTCOMES

- 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 Civil Engineers are 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 Intelligent enough to apply GIS, GPS and remote sensing as a latest tool in different civil engineering construction.

**18CV206 Building Materials Testing Laboratory 18CVI.38**

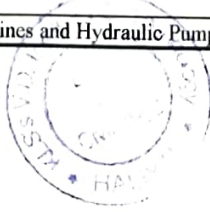
COURSE OUTCOMES

- 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.

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<b>18CV207</b>	<b>Complex Analysis, Probability And Statistical Methods 18MAT41</b>
	COURSE OUTCOMES
CO1	To understand the concept of complex functions.
CO2	To understand the concept of complex integration.
CO3	To apply discrete and continuous probability distributions in analyzing the probability models.
CO4	To make use of the correlation and regression concept to fit a suitable mathematical model for the statistical data.
CO5	To construct the joint probability distributions and analyze samples by using various sampling techniques.
<b>18CV208</b>	<b>Analysis of Determinate Structures 18CV42</b>
	COURSE OUTCOMES
CO1	Identify different forms of structural systems.
CO2	Construct I.L.D and analyse 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
<b>18CV209</b>	<b>Applied Hydraulics 18CV43</b>
	COURSE OUTCOMES
CO1	To learn the fundamentals of Uniform and Non-Uniform flow in open channels.
CO2	To understand about the concepts of specific energy, critical flow and their applications.
CO3	To study open channel flow through Chezy's, Manning's, Kutter's formulae; economical channel sections,
CO4	To understand the components, function, and uses of centrifugal and reciprocating pumps.
CO5	To understand the components, function, and uses of Pelton wheel, Kaplan and Francis turbines.
<b>18CV210</b>	<b>Concrete Technology 18CV44</b>
	COURSE OUTCOMES
CO1	Relate material characteristics and their influence on microstructure of concrete.
CO2	Distinguish concrete behaviour 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	Recognize the importance of material characteristics of special concrete and their influence on microstructure of concrete
<b>18CV211</b>	<b>Advanced Surveying 18CV45</b>
	COURSE OUTCOMES
CO1	Apply geometric principles to arrive at solutions to surveying problems.
CO2	Analyze spatial data using appropriate computational and analytical techniques.
CO3	Design proper types of curves for deviating type of alignments.
CO4	Use the concepts of advanced data capturing methods necessary for engineering practice
<b>18CV212</b>	<b>Water Supply &amp; Treatment Engineering 18CV46</b>
	COURSE OUTCOMES
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
<b>18CV213</b>	<b>Engineering Geology Laboratory 18CVL47</b>
	COURSE OUTCOMES
CO1	To identify the minerals, rocks and utilize them effectively in civil engineering practices.
CO2	To interpret subsurface information such as thickness of soil, weathered zone, depth of hard rock and saturated zone by using geophysical methods.
CO3	To interpret and understand the geological conditions of the area for implementation of civil engineering projects
CO4	To learn the techniques in the interpretation of LANDSAT Imageries to find out the lineaments and other structural features for the given area.
CO5	To identify the different structures in the field.
<b>18CV214</b>	<b>Fluid Mechanics and Hydraulic Machines Laboratory 18CVL48</b>
	COURSE OUTCOMES
CO1	To provide practical knowledge in verification of principles of fluid flow
CO2	To impart knowledge in measuring pressure, discharge and velocity of fluid flow
CO3	To understand Major and Minor Losses
CO4	To gain knowledge in performance testing of Hydraulic Turbines and Hydraulic Pumps at constant speed and Head



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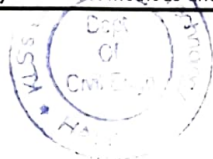
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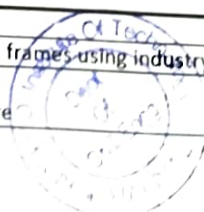
CO Statement 2019-23

<b>18CV301</b>	<b>Construction Management &amp; Entrepreneurship 18CV51</b>
	COURSE OUTCOMES
CO1	Prepare a project plan based on requirements and prepare schedule of a project by understanding the activities and 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 and safety
CO4	Establish as an ethical entrepreneur and establish an enterprise utilizing the provisions offered by the federal agencies
<b>18CV302</b>	<b>18CV52 Analysis of Indeterminate Structures</b>
	COURSE OUTCOMES
CO1	Calculate the moment in indeterminate beams and frames having variable moment of inertia and subsidence using slope deflection method
CO2	Calculate the moment in indeterminate beams and frames of no sway and sway using moment distribution method.
CO3	Derive the bending moment diagram for beams and frames by Kani's method.
CO4	Determine the bending moment diagram for beams and frames using flexibility & stiffness matrix method
<b>18CV303</b>	<b>18CV53 Design of RC Structural Elements</b>
	COURSE OUTCOMES
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.
<b>18CV304</b>	<b>18CV54 Basic Geotechnical Engineering</b>
	COURSE OUTCOMES
CO1	Will acquire an understanding of the procedures to determine index properties of any type of soil, classify the soil based on its index properties
CO2	Will be able to determine compaction characteristics of soil and apply that knowledge to assess field compaction procedures
CO3	Will be able to determine permeability property of soils and acquires conceptual knowledge about stresses due to seepage and effective stress; Also acquire ability to estimate seepage losses across hydraulic structure
CO4	Will be able to estimate shear strength parameters of different types of soils using the data of different shear tests and comprehend Mohr-Coulomb failure theory.
	Ability to solve practical problems related to estimation of consolidation settlement of soil deposits also time required for the same.
<b>18CV305</b>	<b>18CV55 Municipal Wastewater Engineering</b>
	COURSE OUTCOMES
CO1	Select the appropriate sewer appurtanances and materials in sewer network.
CO2	Design the sewer network and understand the self purification process in flowing water.
CO3	design the various physi18CVchemical treatment units.
CO4	design the various biological treatment units.
CO5	design the various AOPs and low cost treatment units .
<b>18CV306</b>	<b>18CV56 Highway Engineering</b>
	COURSE OUTCOMES
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.



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18CV307	<b>18CVL57 Surveying Practice</b>
	COURSE OUTCOMES
CO1	Apply the basic principles of engineering surveying and for linear and angular measurements.
CO2	Comprehend effectively field procedures required for a professional surveyor.
CO3	Use techniques, skills and conventional surveying instruments necessary for engineering practice.
18CV308	<b>18CV58 Concrete and Highway Materials Laboratory</b>
	COURSE OUTCOMES
CO1	Determine the quality and suitability of cement
CO2	Design appropriate concrete mix and to determine strength and quality of concrete
CO3	Test the road aggregates and bitumen for their suitability as road material
CO4	Test the soil for its suitability as sub grade soil for pavements.
18CV309	<b>18CIV59 Environmental Studies</b>
	COURSE OUTCOMES
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
18CV310	<b>18CV61 Design of Steel Structural Elements</b>
	COURSE OUTCOMES
CO1	Possess a knowledge of Steel Structures Advantages and Disadvantages of Steel structures, steel code provisions and plastic behaviour 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 column 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.
18CV311	<b>18CV62 Applied Geotechnical Engineering</b>
	COURSE OUTCOMES
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 combined footings for uniform bearing pressure
CO5	Capable of estimating load carrying capacity of single and group of piles
18CV312	<b>18CV63 Hydrology and Irrigation Engineering</b>
	COURSE OUTCOMES
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 quantity of irrigation water and frequency of irrigation for various crops.
CO5	Find the canal capacity, design the canal and compute the reservoir capacity.
18CV313	<b>18CV642 Solid Waste Management</b>
	COURSE OUTCOMES
CO1	Analyse existing solid waste management system and to identify their drawbacks.
CO2	Evaluate different elements of solid waste management system.
CO3	Suggest suitable scientific methods for solid waste management elements.
CO4	Design suitable processing system and evaluate disposal sites.
18CV314	<b>18CV643 Alternate Building Materials</b>
	COURSE OUTCOMES
CO1	Solve the problems of Environmental issues concerned to building materials and cost effective building technologies.
CO2	Suggest appropriate type of masonry unit and mortar for civil engineering constructions; also they are able to Design Structural Masonry Elements under Axial Compression.
CO3	Analyse different alternative building materials which will be suitable for specific climate and in an environmentally sustainable manner. Also capable of suggesting suitable agro and industrial wastes as a building material.
CO4	Recommend various types of alternative building materials and technologies and design a energy efficient building by considering local climatic condition and building material.
18CV315	<b>18CV651 Remote Sensing &amp; GIS</b>
	COURSE OUTCOMES
CO1	Collect data and delineate various elements from the satellite imagery using their spectral signature.
CO2	Analyze different features of ground information to create raster or vector data.
CO3	Perform digital classification and create different thematic maps for solving specific problems
CO4	Make decision based on the gis analysis on thematic maps
18CV316	<b>18CVL66 Software Application Laboratory</b>
	COURSE OUTCOMES
CO1	Analysis of plane trusses, continuous beams, portal frames using industry standard software
CO2	Project planning and scheduling of a building project using project management software



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CO3	Use of GIS applications using open source software and to create shape files
CO4	Create Excel spreadsheet for the design of structural components
18CV317	18CVL67 Environmental Engineering Laboratory
	COURSE OUTCOMES
CO1	Acquire capability to conduct experiments and estimate the concentration of different parameters.
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.
18CV318	18CVEP68 Extensive Survey project
	COURSE OUTCOMES
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



  
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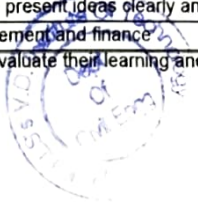
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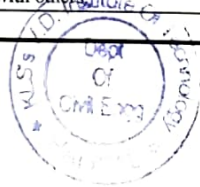
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18CV401	<b>Quantity Surveying and Contracts Management 18CV71</b>
	COURSE OUTCOMES
CO1	Students will able to prepare a detailed and abstract estimations for roads and buildings
CO2	Students will able to prepare a rate analysis for all kind of civil works and also write detailed specification as per execution of work
CO3	Students will have the ability to prepare a valuation reports of a building
CO4	Students will have the ability to prepare Tender and Contract documents of domestic and international construction works
18CV402	<b>Design of RCC and Steel Structures 18CV72</b>
	COURSE OUTCOMES
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 of RCC structures
CO3	Students will have the ability to follow design procedures as per codal provisions and skills to arrive at structurally safe of Steel members (trusses) and Girders
18CV403	<b>Urban Transportation and Planning 18CV745</b>
	COURSE OUTCOMES
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.
18CV404	<b>Masonry Structures 18CV735</b>
	COURSE OUTCOMES
CO1	Describe engineering properties and uses of masonry units, defects and crack in masonry and its remedial measures
CO2	Summarize various formulae's for finding compressive strength of masonry units
CO3	Explain permissible stresses and design criteria as per IS: 1905 and SP-20
CO4	Design different types of masonry walls for different load considerations.
18CV405	<b>Computer Aided Detailing of Structures 18CVL77</b>
	COURSE OUTCOMES
CO1	students will be able to prepare detailed working drawings of RCC structures
CO2	students will be able to prepare detailed working drawings of Steel structures
18CV406	<b>Geotechnical Engineering Lab 18CVL78</b>
	COURSE OUTCOMES
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	Shearstrength and consolidation parameters to assess strength and deformation characteristic
CO5	In-situshear strength characteristics(SPT-Demonstration)
18CV407	<b>Project Work Phase-I + Project work Seminar 18CVL78</b>
	COURSE OUTCOMES
CO1	Describe the project and be able to defend it.
CO2	Develop critical thinking and problem solving skills
CO3	Communicate effectively and to present ideas clearly and coherently both in written and oral forms
CO4	Develop skills of project management and finance
CO5	Develop skills of self learning, evaluate their learning and take appropriate actions to improve it.



*A. Belle*  
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<b>18CV408</b>	<b>Design of Pre Stressed Concrete Elements 18CV81</b>
	COURSE OUTCOMES
CO1	Understand the concept and requirement of PSC members for present scenario.
CO2	Analyse the stresses and deflections encountered in PSC element during transfer and at working.
CO3	Understand the effectiveness of the design of PSC member for flexure and shear.
CO4	Capable of understanding different anchorage system and design of End Block.
<b>18CV409</b>	<b>Design of Bridge 18CV821</b>
	COURSE OUTCOMES
CO1	Understand the load distribution and IRC standards
CO2	Design the slab and T beam bridges
CO3	Design Box culvert, pipe culvert
CO4	Use bearings, hinges and expansion joints
CO5	Design Piers and abutments
<b>18CV410</b>	<b>Pavement Design 18CV825</b>
	COURSE OUTCOMES
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
<b>18CV411</b>	<b>Internship/ Professional Practice 18CV84</b>
	COURSE OUTCOMES
CO1	Able to acquire knowledge pertaining to best practices in the field and correlate with the courses learnt
CO2	students will be able to develop valuvd skills like team work, communication and attention to detail
CO3	students are exposed to the environment and expetations of performance in profession pratice, private /public companies or government entities
<b>18CV412</b>	<b>Project Work-II 18CV85</b>
	COURSE OUTCOMES
CO1	Describe the project and be able to defend it.
CO2	Develop critical thinking and problem solving skills.
CO3	Learn to use modern tools and techniques.
CO4	Communicate effectively and to present ideas clearly and coherently both in written and oral forms.
CO5	Develop skills to work in a team to achieve common goal.
CO6	Develop skills of project management and finance.
CO7	Develop skills of self learning, evaluate their learning and take appropriate actions to improve it.
CO8	Prepare them for life-long learning to face the challenges and support the technological changes to meet the societal needs.
<b>18CV413</b>	<b>Seminar on current trends in Engineering and Technology 18CV86</b>
	COURSE OUTCOMES
CO1	Develop knowledge in the field of Civil Engineering and other disciplines through independent learning and collaborative study.
CO2	Identify and discuss the current, real-time issues and challenges in engineering & technology.
CO3	Develop written and oral communication skills.
CO4	Explore concepts in larger diverse social and academic contexts.
CO5	Apply principles of ethics and respect in interaction with others.
CO6	Develop the skills to enable life-long learning.



  
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