



RISE KRISHNA SAI PRKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF CIVIL ENGINEERING
COURSE OUTCOMES

ACADEMIC YEAR: 2019-2020

YEAR/ SEM: I / I

SUBJECT : MATHEMATICS-I		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C111.1	Test the convergence of an infinite series, utilize mean value theorems to real life problems and express a function in terms of power series	Applying
C111.2	Solve first order and first degree differential equations arising in various Engineering fields.	Applying
C111.3	Solve linear differential equations of higher order and use the knowledge to study LCR Circuits and SHM.	Applying
C111.4	Apply the techniques of multivariable differential calculus to determine extrema and series Expansions of a function of several variables.	Applying
C111.5	Using multiple integrals to find areas, surface areas and volumes.	Evaluating

SUBJECT : MATHEMATICS-II		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C112.1	Solve system of linear algebraic equations using matrix techniques and find eigen values and eigen vectors.	Applying
C112.2	Use Cayley-Hamilton theorem to find inverse and higher powers of matrices and study the nature of Quadratic forms.	Applying
C112.3	Evaluate a root of algebraic and transcendental equations using different methods.	Evaluating
C112.4	Apply Newton's interpolation and Lagrange's formula for equal and unequal intervals to find interpolating polynomial.	Applying
C112.5	Evaluate the solutions of ordinary differential equations to its analytical computations using different methods.	Evaluating



SUBJECT : ENGINEERING PHYSICS		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C113.1	Explain by using vector techniques various harmonic motions and different frames of references were studied.	Understanding
C113.2	Explain the applications of Acoustics and Ultra Sonics.	Understanding
C113.3	Analyzing the concepts of shearing force and moment of inertia by using elasticity and plasticity concepts.	Analyzing
C113.4	Discuss different type's laser systems and sensors principles.	Understanding
C113.5	Explain the applications of dielectric and magnetic materials	Understanding

SUBJECT : ENGINEERING MECHANICS		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C114.1	draw free body diagrams for FBDs for particles and rigid bodies in plane and space and problems to solve the unknown forces, orientations and geometric parameters.	Applying
C114.2	determine centroid for lines, areas and center of gravity for volumes and their composites.	Applying
C114.3	determine area and mass movement of inertia for composite sections	Applying
C114.4	analyze motion of particles and rigid bodies and apply the principles of motion, work energy and impulse momentum.	Applying

SUBJECT : ENGINEERING DRAWING		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C115.1	Draw different regular polygons, engineering curves and scales to match with relevant applications.	Understanding
C115.2	Draw orthographic projections of points and lines inclined to both the planes and apply them in related problems.	Understanding
C115.3	Draw orthographic projections of various planes inclined both the reference planes.	Applying
C115.4	Draw projections of different solids like prisms, pyramids, cylinders and cones with axis inclined to both the reference planes	Applying
C115.5	Convert isometric views in to orthographic views and vice versa and generate 2D/3D objects in AutoCAD.	Applying



SUBJECT : ENGLISH LAB		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C116.1	Explain the basic concepts of language useful for pupils in their career	Understanding
C116.2	Illustrate the usage of tenses in everyday life	Applying
C116.3	Apply the techniques of science through language ability in a practical way	Applying
C116.4	Make use of grammatical sentences for perfect communication	Creating
C116.5	Analyze the importance of future tense with examples	Analyzing

SUBJECT : ENGINEERING PHYSICS – LAB		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C117.1	Apply the basic concepts of mechanics to determine rigidity modulus of a material by using Torsional pendulum.	Applying
C117.2	Apply the basic concepts of laser and techniques for the Diffraction Grating.	Applying
C117.3	Apply the basic concepts of magnetism to study the variation of B versus H.	Applying
C117.4	Apply the basic concepts of dielectrics to determine dielectric constant by charging and discharging method.	Applying
C117.5	Apply the mathematical concepts/equations to obtain quantitative results	Evaluating

SUBJECT : ENGINEERING EXPLORATION PROJECT		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C118.1	Demonstrate a through and systematic understanding of project contents	Understanding
C118.2	Design a system, component or process to meet desired needs in CIVIL engineering	Analysing
C118.3	Understand methodologies and professional way of documentation and communication.	Applying
C118.4	Know the key stages in development of the project..	Analysing
C118.5	Extend or use the idea in mini project to major project.	Applying

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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF CIVIL ENGINEERING
COURSE OUTCOMES

ACADEMIC YEAR: 2019-2020

YEAR/ SEM: I / II

SUBJECT : ENGLISH		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C121.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information.	Understanding
C121.2	Recall the familiar topics and general questions to the students	Remembering
C121.3	Rephrase suitable strategies for note-making to locate specific information.	Understanding
C121.4	Identify the paragraph structure and able to match beginning/sending/heading with paragraph.	Applying
C121.5	Make use of grammatical structure and correct word forms.	Applying

SUBJECT : MATHMATICS-III		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C122.1	Interpret the physical meaning of different operators such as gradient, curl and divergence, estimate the work done against a field,	Applying
C122.2	Apply the Laplace transform for solving differential equations	Applying
C122.3	Find or compute the Fourier series of periodic signals and be able to apply integral expressions for the Fourier and inverse Fourier transform to a range of non-periodic waveforms	Applying
C122.4	Formation of partial differential equation and Identify solution methods for first order partial differential equations	Applying
C122.5	Classify higher order partial differential equations and solve heat flow and wave problems	Applying



SUBJECT : ENGINEERING CHEMISTRY

CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C123.1	Discuss preparation , properties and applications of the plastics, rubber, composite materials.	understanding
C123.2	Explain the batteries, fuel cells, reason for corrosion and its control methods.	understanding
C123.3	Describe the importance of materials like nanomaterials, super conductors, Cement and semi conductors.	understanding
C123.4	Explain the origin of fuel and their economic advantages and limitations	understanding
C123.5	Explain the hardness of water and its softening techniques	understanding

SUBJECT : PPSC

CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C124.1	To use different operators, data types and write programs that use two-way/ multi-way selection	Applying
C124.2	To select the best loop construct for a given problem	Applying
C124.3	To design and implement programs to analyze the different pointer applications	Analyzing
C124.4	To decompose a problem into functions and to develop modular reusable code	Analyzing
C124.5	To apply File, I/O operations	Applying

SUBJECT : COMPUTER AIDED ENGINEERING DRAWING

CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C125.1	Draw the projection of solids and auxiliary views	Remembering
C125.2	Produce the sectional views of solids and developments of surfaces	Remembering
C125.3	Construct perspective projections and Intersection of solids	Applying



C125.4	Select various tools in AUTO-CAD for generation of points, lines, circles	Remembering
C125.5	Produce 2-D models by using CAD commands	Applying
C125.6	Produce 3-D models by using CAD commands	Applying

SUBJECT : PPSC LAB		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C126.1	Gains Knowledge on various concepts of a C language	Applying
C126.2	Able to draw flowcharts and write algorithms.	Applying
C126.3	Able design and development of C problem solving skills.	Applying
C126.4	Able to design and develop modular programming skills.	Applying
C126.5	Able to trace and debug a program	Applying

SUBJECT : ENGINEERING CHEMISTRY – LAB		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C127.1	Describe the experimental skills to design new experiments in engineering.	Understanding
C127.2	Explain the different types of titrations and acquire skills in instrumentation.	Understanding
C127.3	Determine hardness of various water samples.	Evaluating
C127.4	Determine the no of free ions and charges in a mixture of acids using conductivity meter.	Evaluating
C127.5	Calculate the potential between reference electrode and un known solution by using potentio meter .	Evaluating

SUBJECT : COMMUNICATION SKILLS LAB		
CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C128.1	Explain the knowledge ability to communicate the needs and requirement of JAM	Understanding
C128.2	Describe the stand of Role Plays through that they will get good stead when they appear for the job interviews	Remembering
C128.3	Demonstrate the importance of Oral Presentation. So that they can excel in their jobs.	Analyzing



C128.4	Summarize the training offered to students through G.D	Understanding
C128.5	Evaluate the knowledge of writing Emails and Curriculum Vitae.	Evaluating

SUBJECT : ENGINEERING WORKSHOP LAB


CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C129.1	Identify the different tools and prepare the carpentry trade proto types such as Cross lap joint, Dove tail joint.	Analyzing
C129.2	Ability to design and model various basic prototypes in the trade of fitting such as Straight fit, V- fit.	Remembering
C129.3	Ability to make various basic prototypes in the trade of black smithy such as s-hook	Remembering
C129.4	Apply the various House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring.	Applying
C129.5	Ability to make various basic prototypes in the trade of Tin smithy such as rectangular tray.	Remembering

SUBJECT : ENVIRONMENTAL SCIENCE

CO.NO.	Course Outcomes	BT Level
After successful completion of this course students will be able to:		
C1210.1	Explain the concepts of the ecosystem and its functions in the environment.	Understand
C1210.2	Summarize the natural resources and their importance for the sustenance of life & need to conserve the natural resources.	Understand
C1210.3	Demonstrate the values, threats, conservation practices to protect the biodiversity.	Apply
C1210.4	Describe various attributes of the pollution and their impacts and measures to reduce pollution along with waste management practices.	Remember
C1210.5	Evaluate social issues both rural and urban environment and the possible means to combat the challenges, with help of	Evaluate
C1210.6	Implement environmental Impact Assessment, Green campus, business, & politics in their daily life	Apply

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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS

DEPARTMENT OF CIVIL ENGINEERING

Academic Year 2019-2020

II Year I Semester

CO No	Subject: Probability & Statistics	Taxonomy level
Student should be able to		
C2 11.1	Compare various discrete probability distributions	Evaluating
C2 11.2	Compare various continuous probability distributions	Evaluating
C2 11.3	Find the confidence interval for mean of a population	Creating
C2 11.4	Make use of tests of hypothesis for the null hypothesis concerning mean and proportions and perform ANOVA for one way and two-way classification	Understanding
C2 11.5	Apply correlation and regression lines of two variables for real life problems	Applying
C2 11.6	Construct control charts for variables and attributes	Understanding
CO No	Subject: Basic Electrical & Electronics Engineering	Taxonomy level
Student should be able to		
C2 12.1	Apply the different laws in solving resistive, inductive capacitive networks and series – parallel circuits.	Applying
C2 12.2	Analyze the operation of DC generator, applications and conduct the Swinburne's test.	Analyzing
C2 12.3	Derive the losses, efficiency and regulation of single phase transformer.	Creating
C2 12.4	Explain the operation of three phase alternator, three phase induction motor	Understanding
C2 12.5	Analyze the operation of half- wave, full- wave and op-amps.	Analyzing
C2 12.6	Compare the operation of PNP and NPN transistors and various amplifiers	Evaluating
CO No	Subject: Strength of Materials-I	Taxonomy level
Student should be able to		
C213.1	Understand the basic materials behavior under the influence of different external loading conditions	Understanding
C213.2	Analyze the shear force and bending moment diagrams for different types of beams subjected to different loads	Analyzing
C213.3	Acquire of bending concepts and calculation of section modulus and for determination of stresses developed in beams due to various loading conditions..	Evaluating
C213.4	Determine the shear stresses for the various beams subjected to different types of loads.	Applying
C213.5	Analyze and calculate the deflection for different types of beams subjected to different types of loads.	Analyzing
C213.6	Calculation of stresses for cylinders subjected to internal fluid pressure	Applying
CO No	Subject: Building Materials & Construction	Taxonomy level
Student should be able to		
C214.1	Identify different building materials and their importance in building construction.	Remembering
C214.2	List the different types of masonry used in construction	Understanding



C2 14.3	Discuss the different bonding materials used in construction	Understanding
C2 14.4	Explain the Significance of building components used in construction	Remembering
C2 14.5	Explain the Significance of finishing's used in construction	Remembering
C2 14.6	Know the different types of aggregates and their properties	Understanding
CO No	Subject: Surveying	Taxonomy level
Student should be able to		
C2 15.1	Demonstrate the basic surveying.	Applying
C2 15.2	To Use Various Surveying Instruments Like EDM And Compass.	Applying
C2 15.3	Use levelling instruments and discuss the various methods of contouring.	Analyzing
C2 15.4	Demonstrate the Theodolite instrument and Tachometric surveying.	Applying
C2 15.5	To Integrate the Knowledge And Produce Topographical Map.	Understanding
C2 15.6	Compute areas and volumes of earth work.	Applying
CO No	Subject: Fluid Mechanics	Taxonomy level
Student should be able to		
C21 6.1	Discuss the properties of fluids & pressure measurement.	Remembering
C21 6.2	Calculate buoyancy force sub merged in water and the fluid flows	Applying
C21 6.3	Derive Euler's and Bernoulli's equation of motion in bending of pipes	Creating
C21 6.4	Calculate energy losses in pipe by various theories	Applying
C21 6.5	Analyze flow measurement in notches and weirs	Analyzing
C21 6.6	Illustrate theory of boundary layer theory and their forces using Vonkarm integral method, Prandtl's analysis	Applying

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II Year II Semester

CO No	Subject: Building Planning And Drawing	Taxonomy level
Student should be able to		
C221.1	Plan various buildings as per the building byelaws	Understanding
C221.2	Discuss the minimum standards for various parts of buildings and distinguish the relation between plan , elevations , forms and functions	Understanding
C221.3	Discuss the types of Public Buildings and Plan & Sketch it.	Understanding
C221.4	Identify the sign conventions of building materials and bonds of brick walls	Remembering
C221.5	Draw the doors, windows, ventilators, roofs, King Post truss and Queen Posts	Remembering
C221.6	Learn the Skills of drawing building elements and plan the buildings as per the requirements.	Remembering
CO No	Subject: Strength Of Materials - II	Taxonomy level
Student should be able to		
C222.1	Understand the basic concepts of principal stresses developed when subjected to stresses along different axis and design the sections.	Understanding
C222.2	Asses the stresses in shafts and springs subjected to different loading conditions.	Evaluating
C222.3	Calculate the crushing load for columns and struts for different end conditions.	Applying
C222.4	Calculate the stresses in columns and check stability of dams, retaining walls and chimneys	Applying
C222.5	Analyze the stresses in unsymmetrical sections	Analyzing
C222.6	Asses member forces in trusses by using method of joints and sections	Analyzing
CO No	Subject: Hydraulics & Hydraulic Machinery	Taxonomy level
Student should be able to		
C223.1	Solve Uniform open channel flow problems	Applying
C223.2	Solve Non-uniform open channel flow problems	Applying
C223.3	Apply the principle of dimensional analysis and similitude in hydraulic model testing	Applying
C223.4	Understand the working principle of impact of jets	Understanding
C223.5	Understand the working principle of turbines and its applications	Understanding
C223.6	Understand the working principle of Pumps and its applications	Understanding
CO No	Subject: Concrete Technology	Taxonomy level
Student should be able to		
C224.1	Understand the basic concepts of ingredients of concrete and admixtures.	Understanding
C224.2	Categorize different properties of fresh concrete by different methods.	Understanding
C224.3	Predict the different characteristics of harden concrete by various methods.	Understanding
C224.4	Identify various properties of Elasticity, Creep & Shrinkage of harden concrete.	Remembering
C224.5	Analyze various mix designs with respect to different water cement ratios.	Analyzing
C224.6	Discuss various properties of Special Concrete and High performance concrete.	Analyzing
CO No	Subject: Structural Analysis – I	Taxonomy level
Student should be able to		
C225.1	Explain the analysis of propped cantilevers and calculate deflections.	Understanding



C225.2	Estimate the bending moment and shear force in beams for different fixity conditions.	Understanding
C225.3	Analyze continuous beams with different moment of inertia.	Understanding
C225.4	Apply slope deflection method for analyzing the continuous beams with settlements.	Applying
C225.5	Apply Strain energy and its theorems to calculate deflections of simple beams and trusses.	Applying
C225.6	Explain moving loads and Influence lines for calculating maximum bending moment and shear force in beams and trusses.	Understanding
CO No	Subject: Transportation Engineering – I	Taxonomy level
Student should be able to		
C226.1	Understand the theory of highway development, planning & alignment.	Understanding
C226.2	Determine the geometric design of highway and different terminology used in highway.	Analyzing
C226.3	Design intersections and prepare traffic management plans	Analyzing
C226.4	Acquire the knowledge of highway materials used and testing.	Analyzing
C226.5	Analyse the design considerations for different types of pavements.	Applying
C226.6	Ensure the knowledge of highway construction & management.	Analyzing
CO No	Subject: Managerial Economics & Financial Analysis	Taxonomy level
Student should be able to		
C229.1	Relate Economic Principles with Business Practices for getting successful outcomes.	Understanding
C229.2	Determine Cost analysis to find Break Even Point (BEP) of an enterprise in order to avoid losses.	Understanding
C229.3	Estimate the Price – out determinations under different competitions in the Markets and Pricing strategies	Understanding
C229.4	Interpret different forms of business organizations and the new economic environment in the real business.	Understanding
C229.5	Make use of the financial statements and relevant ratios for evaluating company's financial performance to make optimal decisions	Applying
C229.6	Illustrate different Capital Budgeting Methods to estimate the best investment decision in business practices	Analyzing

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III Year I Semester

CO No.	Subject: Management Science	Taxonomy level
Student will be able to		
C3 11.1	To explain the concept and nature of Management, Evolution of Management theories, Motivation and leadership Styles	Understanding
C3 11.2	Illustrate the concepts of Operations, project management and inventory control.	Analyzing
C3 11.3	Outline the main functional areas of organization i.e., Financial Management, Production Management, Marketing Management, Human Resource Management, and Product Life Cycles and Channels of Distribution.	Analyzing
C3 11.4	Summarize the concept and practical issues relating to Strategic Management	Understanding
C3 11.5	Develop the Programme evaluation and Review Techniques along with critical path evaluation	Understanding
C3 11.6	Define the contemporary management practices.	Understanding
CO No	Subject: Engineering Geology	Taxonomy level
Student should be able to		
C3 12.1	Know the importance of geology in civil engineering field with case studies and weathering process of rocks	Understanding
C3 12.2	Get the knowledge of different rocks, minerals and its properties	Understanding
C3 12.3	Know the different terminology of rock minerals, types, mechanism and importance in civil engineering	Understanding
C3 12.4	Explore the knowledge of ground water terms, movement & its techniques and classify, measure the landslides	Understanding
C3 12.5	Analyse the ground conditions, potential of ground water through geophysical survey	Analyzing
C3 12.6	Investigate the site selection for mini/mega and engineering projects like dams, tunnels etc.	Understanding
CO No	Subject: Structural Analysis -II	Taxonomy level
Student should be able to		
C313.1	Analyse the different types arches and to calculate the bending moment, normal thrust and radial shear	Analyzing
C313.2	Analyse the lateral loads are acting in the framed structures.	Analyzing
C313.3	Determine the stresses in anchors, cables and suspension bridges and also calculate shear and bending in stiffening girders	Understanding
C313.4	Analyse the structures using moment distribution method	Analyzing
C313.5	Analyse the structures using kani's method	Analyzing
C313.6	Analyse the structures using advanced matrix methods	Analyzing
CO No	Subject: Design & Drawing of Reinforced Concrete Structures	Taxonomy level
Student should be able to		
C314.1	Classify the different types of design philosophies (working stress and limit state methods)	Analyzing
C314.2	Analyse & Design flexural members in limit state method.	Analyzing
C314.3	Design flexural members for collapse and serviceability conditions.	Creating
C314.4	Analysis & Design various types of slabs.	Analyzing



C3 14.5	Design different types of compression members.	Creating
C3 14.6	Design different types of footings.	Creating
CO No	Subject: Transportation Engineering – II	Taxonomy level
Student should be able to		
C3 15.1	Understand the components of railway track.	Understanding
C3 15.2	Design geometrics in a railway track.	Creating
C3 15.3	Provide a good transportation network.	Creating
C3 15.4	Design the runway and its components.	Creating
C3 15.5	Design airport geometrics and airfield pavements.	Creating
C3 15.6	Plan, construct and maintain Docks and harbours.	Creating

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III Year II Semester

CO No	Subject: Design & Drawing of Steel Structures	Taxonomy level
Student should be able to		
C321.1	Draw and design various types of beam-column connections and work with relevant IS codes.	Analyzing
C321.2	Carryout Analysis and design of flexural members by applying checks for deflection, shear, buckling and bearing.	Analyzing
C321.3	Design Tension members, compression members and various components of trusses.	Creating
C321.4	Demonstrate and draw stiffening of columns by the use of splicing, lacings and battens.	Applying
C321.5	Design and draw column foundations.	Creating
C321.6	Design and draw plate girder and gantry girder with connection detailing.	Creating
CO No	Subject: Geotechnical Engineering – I	Taxonomy level
Student should be able to		
C322.1	Know the definitions and identify the various quantities related to soil mechanics and its relationship	Creating
C322.2	Classify the soils and know the methods of determination of various index properties of soil	Analyzing
C322.3	Discuss the importance of engineering properties of soils and their determination by laboratory methods	Understanding
C322.4	Analyse the stresses induced by different loads and its distribution by different theories	Analyze
C322.5	Discuss the consolidation characteristics of soil and its determination through laboratory methods	Evaluating
C322.6	Extend the significance of shear strength of soils and its determination through various methods	Evaluating
CO No	Subject: Environmental Engineering -I	Taxonomy level
Student should be able to		
C323.1	Classify the types of water demands and estimate population forecasting using different methods.	Analyzing
C323.2	Identify the sources of water, collection & conveyance of water.	Remembering
C323.3	Examine the characterization of water.	Remembering
C323.4	Selection of suitable treatment flow for raw water treatment.	Evaluating
C323.5	Discuss the theory of chlorination and other disinfection methods.	Remembering
C323.6	Select the appropriate appurtenances in the water supply.	Evaluating
CO No	Subject: Water Resource Engineering -I	Taxonomy level
Student should be able to		
C324.1	Understand the theory of hydrologic cycle and analyse the precipitation data by	Understanding



	using different methods.	
C3 24.2	Estimate the hydrologic components such as evaporation ,transpiration and infiltration.	Applying
C3 24.3	Determine the storage capacity using direct runoff and develop corresponding hydrographs.	Applying
C3 24.4	Estimate flood magnitude and carry out flood routing.	Analyzing
C3 24.5	Determine aquifer parameters and yield of wells.	Applying
C3 24.6	Simulate the hydrologic process using different techniques.	Applying
CO No	Subject: Waste water Management	Taxonomy level
Student should be able to		
C3 25.1	Identify various industrial wastewater treatment process	Remembering
C3 25.2	Classify treatment methods for industrial wastewater	Analyzing
C3 25.3	Predict wastewater characterization and recycling techniques	Analyzing
C3 25.4	Categorize wastewater disposal management by considering the advantages, limitations and its suitability	Analyzing
C3 25.5	Classify the process and treatment methods for specific industries	Analyzing
C3 25.6	Discuss manufacturing process and wastewater treatment methods for specific industries	Understanding

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IV Year I Semester

CO No	Subject: Environmental Engineering-II	Taxonomy level
Student should be able to		
C4 11.1	Design the suitable sewerage systems and select the appropriate appurtenances in the sewerage system	Creating
C4 11.2	Acquire the knowledge of pumping station and Select suitable plumbing systems in buildings	Remembering
C4 11.3	Examine the characteristics of sewage and design the suitable treatment methods of sewage	Remembering
C4 11.4	Classify aerobic & anaerobic treatment process through attached growth process & suspended growth process	Analyzing
C4 11.5	Design miscellaneous treatment methods for disposal of effluents through septic tank, imhoff tank etc.	Creating
C4 11.6	Know the significance of sludge management and disposal of sewage for sustainable environment	Remembering
CO No	Subject: Water Resources Engineering-II	Taxonomy level
Student should be able to		
C4 12.1	Estimate irrigation and its importance with different systems	Creating
C4 12.2	Discuss about classification of canals and methods to find canal lining	Remembering
C4 12.3	Design Irrigation canal structures	Remembering
C4 12.4	Plan and design diversion head works layout and Discuss failures of weirs on permeable foundation	Analyzing
C4 12.5	Know about reservoir planning and study of various forces acting on dams	Creating
C4 12.6	Know the concepts for analysis of earth dams	Remembering
CO No	Subject: Geotechnical Engineering-II	Taxonomy level
Student should be able to		
C4 13.1	Discuss stability analysis by various methods.	Applying
C4 13.2	Understand the concept of earth retaining structures by suitable theories.	Applying
C4 13.3	Analyze the settlement criteria in shallow foundations by plate load test and bearing capacity of soil by various methods.	Analyzing
C4 13.4	Discuss the types of pile foundations and their groups	Understanding
C4 13.5	Analyse the different forces acting on well foundation and its shapes	Analyzing
C4 13.6	Discuss the methods of soil exploration and need for soil exploration	understanding
CO No	Subject: Remote Sensing & GIS	Taxonomy level
Student should be able to		
C4 14.1	Understand the basic components of remote sensing and Explain the electromagnetic radiation and its interaction.	Understanding
C4 14.2	Discuss the different elements of visual interpretations and digital image processing.	Understanding
C4 14.3	Summaries the basic components of GIS, types of data & its applications.	Applying
C4 14.4	Analyse the operations of vector & raster overlays functions.	Analyzing
C4 14.5	Explore the knowledge of GIS applications in general such as land use, forest, geology etc.	Applying



C4 14.6	Acquire the knowledge of GIS applications in hydrology & water resources, Disaster management.	Applying
CO No	Subject: Ground Improvement Techniques	Taxonomy level
Student should be able to		
C415.1	Possess the knowledge of various methods of ground improvement techniques.	Applying
C415.2	Discuss the theory and process of dewatering from various point of sources.	Applying
C415.3	Discuss the theory and methods of soil stabilization.	Analyzing
C415.4	Design reinforced earth embankment and check its stability.	Understanding
C415.5	State the various functions of geo-synthetics and their applications in civil engineering practice.	Analyzing
C415.6	Understand the concepts and applications of grouting.	understanding
CO No	Subject: Ground Water Development	Taxonomy level
Student should be able to		
C4 16.1	Understand aquifer properties and its dynamics	Applying
C4 16.2	Analyze the concept of Well design and its applications	Applying
C4 16.3	Acquire information of well construction and its maintenance	Analyzing
C4 16.4	Recognize the importance of artificial recharge of groundwater and the concept of seawater intrusion.	Understanding
C4 16.5	Interpret the Geophysical data for the determination of Groundwater potential in the aquifers	Analyzing
C4 16.6	Predict the groundwater flow and apply appropriate measures for groundwater management	Understanding
CO No	Subject: IPR&P	Taxonomy level
Student should be able to		
C417.1	Outline different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP.	Understanding
C417.2	Recognize the crucial role of IP in organizations of different industrial sectors for the Purposes of product and technology development.	Analyzing
C417.3	Identify activities and constitute IP infringements and the remedies available to the IP owner.	Evaluating
C417.4	Describe the precautions steps to be taken to prevent infringement of proprietary rights.	Evaluating
C417.5	Understand importance of IP in products and technology development.	Evaluating
C417.6	Discuss with the processes of Intellectual Property Management (IPM) and various approaches for IPM	Analyzing


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IV Year II Semester

CO No	Subject: Estimation Specifications & Costing	Taxonomy level
Student should be able to		
C421.1	Determine the quantities of different components of buildings.	Understanding
C421.2	Find the cost of various building components.	Understanding
C421.3	Determine the quantities of earthwork in road & Canal and reinforcement details	Applying
C421.4	Capable of finalizing the value of structures.	Understanding
C421.5	Estimate the quantities of Buildings using individual wall method	Understanding
C421.6	Estimate the quantities of Buildings using Centre line method	Analyzing
CO No	Subject: Construction Technology Management	Taxonomy level
Student should be able to		
C422.1	Appraise the importance of project planning and its management such as scheduling and controlling.	Understanding
C422.2	Understand the project evaluation and review techniques.	Understanding
C422.3	Understand the functioning of various construction equipments and their functioning system.	Applying
C422.4	Identify various earthwork equipments and hoist equipments in respective fieldwork.	Understanding
C422.5	Demonstrate various concreting equipments and implementation mythologies.	Understanding
C422.6	Describe construction methods in earthwork and piling to the respective fieldwork.	Analyzing
CO No	Subject: Prestressed Concrete	Taxonomy level
Student should be able to		
C423.1	Understand the different methods of prestressing	Understanding
C423.2	Acquire the Knowledge of Prestressing Systems & Classification, Tensioning devices and Analysis of prestress and design Concepts of load balancing Stresses in Tendons, Cracking moment	Understanding
C423.3	Estimate effective prestress including the short and long term losses	Applying
C423.4	Analyze and design prestressed concrete beams under flexure	Understanding
C423.5	Analyze and design prestressed concrete beams under shear and torsion	Understanding
C423.6	Understand the relevant IS Codal provisions for prestressed concrete	Analyzing
CO No	Subject: Solid and Hazardous Waste Management	Taxonomy level
Student should be able to		
C424.1	Discuss the Classification of Solid Waste, Factors affecting, sampling and characterization and Measurement of NPK and Calorific value.	Understanding
C424.2	Design the collection systems of solid waste of a town	Understanding
C424.3	Design treatment of municipal solid waste and landfill	Remembering
C424.4	Know the criteria for selection of landfill	Understanding
C424.5	Characterize the solid waste and design a composting facility	Understanding
C424.6	Know the Method of treatment and disposal of Hazardous wastes.	Understanding



Project & Seminar		Taxonomy level
Student should be able to		
C425.1	Work in a team to select a topic for project work.	Creating
C425.2	Review and evaluate the available literature.	Creating
C425.3	Identify the study area to which solution be employed to the problem.	Creating
C425.4	Formulate the Methodology for the project topic	Creating
C425.5	Apply the principles, tools and techniques.	Creating
C425.6	Summarize the conclusions and recommendations of project topic.	Creating

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