DEPARTMENTOFCIVILENGINEERING

Department: Department of Civil Engineering				
AcademicYear:2022-2023		**Year:I Semester:I**	**Course:**Mathematics – I	**Regulation:R20**
S.No.	**CourseOutcomes**	**Description**		
1	C101.1	utilize mean value theorems to real life problems(L3)		
2	C101.2	solve the differential equations related to various engineering fields (L3)		
3	C101.3	familiarize with functions of several variables which is useful in optimization (L3)		
4	C101.4	apply double integration techniques in evaluating areas bounded by region (L3)		
5	C101.5	students will also learn important tools of calculus in higher dimensions. Students will become with 2-dimensional and 3-dimensional coordinate systems (L5) systems (L5)		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:I Semester:I**	**Course:**COMMUNICATIVE ENGLISH	**Regulation:R20**
S.No.	**CourseOutcomes**	**Description**		
1	C102.1	understand social or transactional dialogues spoken by native speakers of English and identify the context,		
2	C102.2	¾ ask and answer general questions on familiar topics and introduce oneself/others		
3	C102.3	¾ employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information		
4	C102.4	recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs		
5	C102.5	form sentences using proper grammatical structures and correct word forms		

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Department: Department of Civil Engineering				
AcademicYear:2022-2023		**Year: I** **Semester: I**	**Course:** ENGINEERING PHYSICS	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C103.1	1. Explain the need of coherent sources and the conditions for sustained interference (L2).		
2	C103.2	Explain various types of emission of radiation (L2). Identify lasers as tools in engineering applications (L3).		
3	C103.3	Explain the concept of dielectric constant and polarization in dielectric materials (L2). Summarize various types of polarization of dielectrics (L2)		
4	C103.4	Explain sound waves and its propagation/absorption of construction material used in design of buildings (L2).		
5	C103.5	1 Interpret various crystal systems (L2) and Analyze the characterization of materials by XRD (L4).		

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Department: Department of Civil Engineering				
AcademicYear2022-2023		**Year: I** **Semester: I**	**Course:** ENGINEERING GEOLOGY	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C104.1	x Identify and classify the geological minerals x Measure the rock strengths of various rocks x Classify and measure the earthquake prone areas to practice the		
2	C104.2	Measure the rock strengths of various rocks		
3	C104.3	x Classify and measure the earthquake prone areas to practice the hazard zonation		
4	C104.4	Classify, monitor and measure the Landslides and subsidence Classify and measure the earthquake prone		
5	C104.5	Prepares, analyses and interpret the Engineering Geologic maps		

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Department: Department of Civil Engineering				
AcademicYear2022-2023		**Year: I Semester: I**	**Course:** ENGINEERING DRAWING	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C105.1	Proficiency in Technical Drawing*: Students will demonstrate proficiency in producing engineering		
2	C105.2	Understanding of Drawing Standards and Conventions*: Students will understand and apply relevant drawing standards and conventions such as dimensioning, scaling, line types, and symbols commonly used in civil engineering.		
3	C105.3	Visualization and Interpretation Skills*: Students will develop the ability to interpret and visualize two-		
4	C105.4	Communication Skills*: Students will enhance their ability to communicate engineering ideas and concepts		
5	C105.5	Collaborative Problem-Solving*: Students will collaborate in teams to solve engineering design problems by creating detailed drawings that meet specified requirements and constraints.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year: I Semester: I**	**Course:** ENGINEERING PHYSICS LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C106.1	Understanding of Fundamental Physics Principles*: Demonstrate an understanding of fundamental physics		
2	C106.2	*Experimental Skills*: Develop proficiency in experimental techniques including data collection,		
3	C106.3	Application of Physics Concepts to Civil Engineering Problems*: Apply principles of physics to solve real-		
4	C106.4	Safety Protocols*: Adhere to safety protocols and procedures when conducting experiments, including		
5	C106.5	*Critical Thinking and Problem-Solving*: Develop critical thinking and problem-solving skills by		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year: I** **Semester: I**	**Course:** ENGINEERING ENGLISH LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C107.1	Understanding Experimental Procedures*: Students will demonstrate the ability to comprehend and follow experimental procedures specific to civil engineering applications		
2	C107.2	Data Collection and Analysis*: Students will collect experimental data accurately and analyze it using appropriate statistical and graphical methods to draw meaningful conclusions.		
3	C107.3	4. *Safety Protocols*: Students will adhere to safety protocols and guidelines while conducting experiments, ensuring a safe working environment for themselves and their peers.		
4	C107.4	Teamwork and Collaboration*: Students will work collaboratively in teams to plan, execute, and analyze experiments, fostering effective communication and teamwork skills.		
5	C107.5	Application of Theory to Practice*: Students will apply theoretical knowledge gained in lectures to practical, real-world scenarios, bridging the gap between classroom learning and professional practice in civil engineering.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year: I** **Semester: I**	**Course:** BASICS OF CIVIL ENGG. (WORK SHOP) LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C108.1	™ Identify different soils ™ Know various traffic signs & signals ™ Determine centre of gravity and		
2	C108.2	™ Determine distances and irregular areas using conventional survey instruments like chain, tape,		
3	C108.3	Identify different soils		
4	C108.4	Know various traffic signs & signalS.		
5	C108.5	™ Determine centre of gravity and moment of inertia of channel and I-sections.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:I Semester:II**	**Course:** MATHEMATICS –II	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C109.1	x develop the use of matrix algebra techniques that is needed by engineers for practical applications (L6)		
2	C109.2	x solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel (L3)		
3	C109.3	evaluate the approximate roots of polynomial and transcendental equations by different algorithms (L5)		
4	C109.4	apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal		
5	C109.5	x apply numerical integral techniques to different Engineering problems (L3)		

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Department: Department of Civil Engineering				
AcademicYear: 2022023		**Year:I Semester:II**	**Course:** ENGINEERING CHEMISTRY	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C110.1	Analyze the suitable methods for purification and treatment of hard water and brackish water.		
2	C110.2	Utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering		
3	C110.3	Synthesize nanomaterials for modern advances of engineering technology.		
4	C110.4	Summarize the techniques that detect and measure changes of state of reaction.		
5	C110.5	Illustrate the commonly used industrial materials.		

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Department: Department of Civil Engineering			
AcademicYear: 2022-2023	**Year:I Semester :II**	**Course:** ENIGINEERING MECHANICS	**Regulation:R20**

S.No.		Description
1	C111.2	The students are to be exposed to the concepts of force and friction , direction and its application
2	C111.3	The students are to be exposed to application of free body diagrams. Solution to problems using graphical
3	C111.4	The students are to be exposed to concepts of centre of gravity
4	C111.5	The students are to be exposed to concepts of moment of inertia and polar moment of inertia including
5	C111.1	The students are to be exposed to motion in straight line and in curvilinear paths, its velocity and acceleration computation and methods of representing plane motion.

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Department: Department of Civil Engineering			
AcademicYear: 2022-2023	**Year:I Semester:II**	**Course:** BUILDING MATERIALS AND CONCRETE TECHNOLOGY	**Regulation:R20**

S.No.	Course Outcomes	Description
1	C112.1	Know various engineering properties of building construction materials and suggest their suitability
2	C112.2	Identify the functional role of ingredients of concrete and apply this knowledge to concrete mix design
3	C112.3	Acquire and apply fundamental knowledge in the fresh and hardened properties of concrete

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:I Semester:II**	**Course:** PROGRAMMING FOR PROBLEM SOLVING USING C	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C113.1	To learn about the computer systems, computing environments, developing of a computer program and		
2	C113.2	To gain knowledge of the operators, selection, control statements and repetition in C		
3	C113.3	To learn about the design concepts of arrays, strings, enumerated structure and union types. To learn about		
4	C113.4	To assimilate about pointers, dynamic memory allocation and know the significance of Preprocessor.		
5	C113.5	To assimilate about File I/O and significance of functions		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:I Semester:II**	**Course:** PROGRAMMING FOR PROBLEM SOLVING USING C LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C114.1	Apply the principles of C language in problem solving.		
2	C114.2	To design flowcharts, algorithms and knowing how to debug programs.		
3	C114.3	To design & develop of C programs using arrays, strings pointers & functions.		
4	C114.4	To review the file operations, preprocessor commands.		
5	C114.5	a C program to print a block F using hash (#), where the F has a height of six characters and width of five		

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Department: Department of Civil Engineering			
AcademicYear: 2022-2023	**Year:I Semester:II**	**Course:** ENGINEERING CHEMISTRY LAB	**Regulation:R20**

S.No.		Description
1	C115.2	The students entering into the professional course have practically very little exposure to lab classes
2	C115.3	The experiments introduce volumetric analysis; redox titrations with different indicator.
3	C115.4	Then they are exposed to a few instrumental methods of chemical analysis. Thus at the end of the lab course
4	C115.5	The student is exposed to different methods of chemical analysis and use of some commonly
5	C115.1	Molarity, normality, primary, secondary standard solutions, volumetric titrations, quantitative analysis

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Department: Department of Civil Engineering			
AcademicYear: 2022-2023	**Year:I Semester:II**	**Course:** BUILDING PLANNING AND COMPUTER AIDED BUILDING DRAWING	**Regulation:R20**

S.No.	Course Outcomes	Description
1	C116.1	Perform basic commands of any suitable CAD software to draw 2D drawings
2	C116.2	Interpret the conventions, signs and symbols from a given drawing.
3	C116.3	Prepare line plans of residential and public buildings using principles of planning.
4	C116.4	Prepare submission and working drawing from the given requirement for Load Bearing and Framed
5	C116.5	Computer with specification suitable for relevant CAD software with any suitable CAD Software

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** MATHEMATICS-III	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C101.1	interpret the physical meaning of different operators such as gradient, curl and divergence (L5)		
2	C101.2	estimate the work done against a field, circulation and flux using vector calculus (L5)		
3	C101.3	apply the Laplace transform for solving differential equations (L3)		
4	C101.4	find or compute the Fourier series of periodic signals (L3)		
5	C101.5	x know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms (L3)		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** STRENGTH OF MATERIALS - I	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C102.1	The student will be able to understand the basic materials behavior under the influence of different		
2	C102.2	The student will be able to draw the diagrams indicating the variation of the key performance		
3	C102.3	The student will have knowledge of bending concepts and calculation of section modulus and for		
4	C102.4	The student will be able to assess stresses across section of the thin and thick cylinders to arrive at		
5	C102.5	To give concepts of stresses developed in the cross section and bending equations calculation of section		

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DEPARTMENTOFCIVILENGINEERING

Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** FLUID MECHANICS	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C103.1	Understand the various properties of fluids and their influence on fluid motion and analyse a variety of problems in fluid statics and dynamics.		
2	C103.2	Calculate the forces that act on submerged planes and curves.		
3	C103.3	Ability to analyse various types of fluid flows.		
4	C103.4	Apply the integral forms of the three fundamental laws of fluid mechanics to turbulent and laminar flow		
5	C103.5	Able Measure the quantities of fluid flowing in pipes, tanks and channels.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** SURVEYING AND GEOMETRICS	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C104.1	Apply the knowledge to calculate angles, distances and levels		
2	C104.2	x Identify data collection methods and prepare field notes		
3	C104.3	Understand the working principles of survey instruments, measurement errors and corrective		
4	C104.4	Interpret survey data and compute areas and volumes, levels by different type of equipment and relate the		
5	C104.5	Apply surveying principles to determine areas and volumes and setting out curves		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** HIGHWAY ENGINEERING	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C105.1	Plan highway network for a given area.		
2	C105.2	¾ Determine Highway alignment and design highway geometrics.		
3	C105.3	Design Intersections and prepare traffic management plans		
4	C105.4	Judge suitability of pavement materials and design flexible and rigid pavements		
5	C105.5	To impart different concepts in the field of Highway Engineering.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** CONCRETE TECHNOLOGY LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C106.1	Determine consistency and fineness of cement.		
2	C106.2	Determine setting times of cement.		
3	C106.3	Determine specific gravity and soundness ofcement		
4	C106.4	Determine compressive strength ofcement.		
5	C106.5	Determine workability of cement concrete by compaction factor, slump and Vee – Beetests		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** HIGHWAY ENGINEERING LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C107.1	Test aggregates and judge the suitability of materials for the road construction		
2	C107.2	Test the given bitumen samples and judge their suitability for the road construction		
3	C1073	Obtain the optimum bitumen content for Bituminous Concrete		
4	C107.4	Determine the traffic volume, speed and parking characteristics.		
5	C107.5	Draw highway cross sections and intersections.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:I**	**Course:** SURVEYING FILED WORK – I (Lab)	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C108.1	Survey in an area by chain survey (Closed circuit)		
2	C108.2	Plane table survey; finding the area of a given boundary by the method of Radiation		
3	C108.3	Plane table survey; finding the area of a given boundary by the method of intersection.		
4	C108.4	Fly levelling : Height of the instrument method (differential levelling)		
5	C108.5	Two Point Problem by the plane table survey.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** Complex Variables and Statistical Methods	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C201.1	apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic (L3)		
2	C201.2	find the differentiation and integration of complex functions used in engineering problems (L5)		
3	C201.3	make use of the Cauchy residue theorem to evaluate certain integrals (L3)		
4	C201.4	apply discrete and continuous probability distributions (L3)		
5	C201.5	design the components of a classical hypothesis test (L6)		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** STRENGTH OF MATERIALS - II	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C202.1	The student will be able to understand the basic concepts of Principal stresses developed in a		
2	C202.2	The student can assess stresses in different engineering applications like shafts, springs,		
3	C202.3	To give concepts of torsion and governing torsion equation, and there by calculate the		
4	C202.4	The concept of unsymmetrical bending in beams Location of neutral axis Deflection of beams		
5	C202.5	To give concepts of Principal stresses and strains developed in cross section of the beams on the		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** HYDRAULICS AND HYDRAULIC MACHINERY	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C203.1	Solve uniform and non-uniform open channel flow problems.		
2	C203.2	Apply the principals of dimensional analysis and similitude in hydraulic model testing.		
3	C203.3	Understand the working principles of various hydraulic machineries and pumps.		
4	C203.4	To introduce dimensional analysis for fluid flow problems		
5	C203.5	To study about uniform and non-uniform flows in open channel and also to learn about the characteristics of hydraulic jump		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** ENVIRONMENTAL ENGINEERING	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C204.1	Select a source based on quality and quantity and Estimate design population and water demand		
2	C204.2	Design a water treatment plant for a village/city		
3	C204.3	Design a sewer by estimating DWF and Strom water flow and plumbing system for buildings		
4	C204.4	Design a Sewage Treatment Plant for a town/city.		
5	C204.5	Design of sewers and plumbing system for buildings		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** Managerial Economics & Financial Analysis	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C205.1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticities		
2	C205.2	The knowledge of understanding of the Input-Output-Cost relationships and estimation of the		
3	C205.3	The pupil is also ready to understand the nature of different markets and Price Output		
4	C205.4	The Learner is able to prepare Financial Statements and the usage of various Accounting		
5	C205.5	The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** EVIRONMENTAL ENGINEERING LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C206.1	Estimate some important characteristics of water, wastewater and soil in the laboratory		
2	C206.2	Draw some conclusion and decide whether the water is suitable for Drinking/Construction /		
3	C206.3	Estimate Chloride, EC and Salinity of Soil and suggest their suitability for		
4	C206.4	Estimation of the strength of the sewage in terms of BOD and COD and Decide whether the water		
5	C206.5	Demonstration of various instruments used in testing of water and soil and study of Drinking		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** STRENGTH OF MATERIALS LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C207.1	*Understand the basics of material properties:* - Define and explain fundamental concepts related to material properties, including stress,		
2	C207.2	Perform material testing techniques:* - Demonstrate proficiency in conducting experiments to determine material properties through tests such as tension, compression, and shear tests.		
3	C207.3	*Analyze stress and strain distributions:* - Apply theoretical principles to analyze and interpret stress and strain distributions in various structural elements under different loading conditions.		
4	C207.4	*Determine material behavior under different loads:* - Predict and explain the behavior of materials under axial, torsional, and flexural loading conditions.		
5	C207.5	Utilize testing equipment and instruments:* - Operate and understand the use of various testing equipment and instruments commonly used in Strength of Materials Lab, such as universal testing machines, strain gauges, and		

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DEPARTMENTOFCIVILENGINEERING

Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II Semester:II**	**Course:** FLUID MECHANICS AND HYDRAULIC MACHINERY LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C208.1	Understanding Fundamental Principles:* - Demonstrate a solid understanding of fundamental principles and concepts related to fluid mechanics.- Apply the principles of fluid statics and dynamics to analyze various fluid systems.		
2	C208.2	*Experimental Techniques:* - Develop proficiency in using experimental techniques and laboratory equipment for fluid flow measurements.		
3	C208.3	*Hydraulic Machinery Analysis:* - Analyze and evaluate the performance characteristics of hydraulic machines, such as pumps and turbines. - Apply theoretical knowledge to predict and interpret the behavior of hydraulic machinery.		
4	C208.4	Fluid Flow Visualization:* - Demonstrate the ability to visualize and interpret fluid flow patterns using experimental methods. - Understand and apply flow visualization techniques to different fluid systems.		
5	C208.5	*Data Analysis and Interpretation:* - Acquire skills in collecting, analyzing, and interpreting experimental data related to fluid mechanics.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:II** **Semester:II**	**Course:** Skill oriented course*	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C209.1	*Structural Analysis and Design:*- Ability to analyze and design structures using various materials. - Proficiency in using structural analysis software. - Understanding of different types of loads and their effects on structures.		
2	C209.2	*Geotechnical Engineering:*- Knowledge of soil mechanics and foundation engineering principles. - Capability to conduct site investigations and soil testing. - Design proficiency for shallow and deep foundations.		
3	C209.3	Transportation Engineering:* - Understanding of transportation planning and design. - Ability to design and analyze transportation systems and infrastructure. - Knowledge of traffic engineering principles.		
4	C209.4	*Environmental Engineering:* - Proficiency in water and wastewater treatment design. - Understanding of air and noise pollution control measures. - Knowledge of environmental impact assessment.		
5	C209.5	Construction Management:* - Project planning and scheduling skills. - Budgeting and cost estimation proficiency. - Knowledge of construction laws and regulations.		

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DEPARTMENTOFCIVILENGINEERING

Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:I**	**Course:** Professional Core courses (STRUCTURAL ANALYSIS)	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C301.1	Distinguish between the determinate and indeterminate structures.		
2	C301.2	Identify the behavior of structures due to the expected loads, including the moving loads, acting on the structure.		
3	C301.3	Estimate the bending moment and shear forces in beams for different fixity conditions.		
4	C301.4	Analyze the continuous beams using various methods -, three moment method, slope deflection method, energy theorems.		
5	C301.5	Draw the influence line diagrams for various types of moving loads on beams/bridges.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:I**	**Course:** DESIGN AND DRAWING OF REINFORCED CONCRETE	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C302.1	Work on different types of design methods		
2	C302.2	Carryout analysis and design of flexural members and detailing		
3	C302.3	Design structures subjected to shear, bond and torsion		
4	C302.4	Design different type of compression members and footings		
5	C302.5	Equip student with design of members in flexural and shear		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:I**	**Course:** GEOTECHNICAL ENGINEERING - I	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C303.1	The student must know the definition of the various quantities related to soil mechanics and		
2	C303.2	The student should be able to know the methods of determination of the various index properties of		
3	C303.3	The student should be able to know the importance of the different engineering properties		
4	C303.4	The student should be able to apply the above concepts in day-to-day civil engineering practice.		
5	C303.5	To impart the principles of compaction and consolidation of soils and determine the magnitude and the rate of consolidation		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:I**	**Course:** REMOTE SENSING AND GIS	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C304.1	Be familiar with ground, air and satellite-based sensor platforms.		
2	C304.2	Interpret the aerial photographs and satellite imageries		
3	C304.3	Create and input spatial data for GIS application		
4	C304.4	Apply RS and GIS concepts for application in Civil Engineering.		
5	C304.5	appreciate application of RS and GIS to Civil Engineering		

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DEPARTMENTOFCIVILENGINEERING

Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:I**	**Course:**GEOTECHNICAL ENGINEERING LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C305.1	Determine index properties of soil and classify them.		
2	C305.2	Determine permeability of soils.		
3	C305.3	Determine Compaction, Consolidation and shear strength characteristics.		
4	C305.4	To determine shear parameters of soil through different laboratory tests.		
5	C305.5	To impart knowledge of determination of index properties required for classification of soils		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** Professional Core courses (DESIGN AND DRAWING OF STEEL STRUCTURES)	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C306.1	Work with relevant IS codes		
2	C306.2	Carryout analysis and design of flexural membersand detailing		
3	C306.3	Design compression members of different types with connection detailing		
4	C306.4	Design Plate Girder and Gantry Girder with connection detailing		
5	C306.5	Produce the drawings pertaining to different components of steel structures		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** WATER RESOURCES ENGINEERING	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C307.1	Have a thorough understanding of the theories and principles governing the hydrologic processes		
2	C307.2	Be able to quantify hydrologic components and apply concepts in hydrologic design of water resources projects.		
3	C307.3	Develop Intensity-Duration-Frequency and Depth-Area Duration curves to design hydraulic		
4	C307.4	Develop design storms and carry out frequency analysis.		
5	C307.5	Develop flow mass curve and flow duration curve, apply hydrograph analysis in the design of water resourcesprojects		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** GEOTECHNICAL ENGINEERING – II	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C308.1	The student must be able to understand the various types of shallow foundations and decide on their location based on soil characteristics		
2	C308.2	The student must be able to compute the magnitude of foundation settlement and decide on the size of the foundation accordingly.		
3	C308.3	The student must be able to use the field test data and arrive at the bearing capacity		
4	C308.4	The student must be able to apply the principles of bearing capacity of piles and design them accordingly.		
5	C308.5	To enable the student to imbibe the concepts of pile foundations and determine their load carrying capacity.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** - ESTIMATION, COSTING AND CONTRACTS LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C309.1	The student should be able to determine the quantities of different components of buildings.		
2	C309.2	The student should be in a position to find the cost of various building components.		
3	C309.3	The student should be capable of finalizing the value of structures.		
4	C309.4	Understand the rate analysis of different quantities of the buildings components.		
5	C309.5	Understand the quantity calculations of different components of the buildings.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** REMOTE SENSING & GIS LAB	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C310.1	Work comfortably on GIS software		
2	C310.2	Digitize and create thematic map and extract important features		
3	C310.3	Develop digital elevation model		
4	C310.4	Interpretation and Estimation of features from satellite imagery.		
5	C310.5	Analyze and Modelling using GIS software.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:III Semester:II**	**Course:** ROAD SAFETY ENGINEERING	**Regulation:R20**
S.No.	**Course Outcomes**	**Description**		
1	C311.1	To understand fundamental of Traffic Engineering		
2	C311.2	To investigate & determine the collective factors & remedies of accident involved.		
3	C311.3	To design & planning various road geometrics.		
4	C311.4	To massage the traffic system from road safety point of view.		
5	C311.5	The various traffic management systems for safety & safety improvement strategies are dealt.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:VI Semester:I**	**Course:** BRIDGE ENGINEERING	**Regulation:R19**
S.No.	**Course Outcomes**	**Description**		
1	C312.1	Explain different types of Bridges with diagrams and Loading standards		
2	C312.2	Carryout analysis and design of Slab bridges, T Beam bridges, Box culvers and suggest structural detailing		
3	C312.3	Carryout analysis and design of Plate girder bridges		
4	C312.4	Organize for attending inspections and maintenance of bridges and prepare reports.		
5	C312.5	Understand concepts of design of Plate Girder Bridges		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**YearVI Semester:I**	**Course:** GROUND IMPROVEMENT TECHNIQUES	**Regulation:R19**
S.No.	**Course Outcomes**	**Description**		
1	C401.1	By the end of the course, the student should be able to possess the knowledge of various methods		
2	C401.2	The student should be in a position to design a reinforced earth embankment and check its		
3	C401.3	The student should know the various functions of Geo synthetics and their applications in Civil		
4	C401.4	The student should be able to understand the concepts and applications of grouting		
5	C401.5	To enable the students to know how geotextiles and geo synthetics can be used to improve the engineering performance of soils.		

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Department: Department of Civil Engineering				
AcademicYear: 2022-2023		**Year:VI Semester:II**	**Course:** URBAN HYDROLOGY	**Regulation:R19**
S.No.	**Course Outcomes**	**Description**		
1	C402.1	develop intensity duration frequency curves for urban drainage systems		
2	C402.2	Develop design storms to size the various components of drainage systems.		
3	C402.3	Apply best management practices to manage urban flooding.		
4	C402.4	Prepare master drainage plan for an urbanized area.		
5	C402.5	understand the concepts in design of various components of urban drainage systems		

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PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)