



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada

L.B. REDDY NAGAR, MYLAVARAM, N.T.R DIST., A.P.-521 230.

Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (R23) MAPPING WITH POs AND PSOs

I SEMESTER (I BTECH -I SEM)																
23FE01	COMMUNICATIVE ENGLISH	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C01	Understand the context, topic, and pieces of specific information from social or transactional dialogues (Understand)	-	-	-	1	-	-	-	-	3	3	-	2	-	-	-
C02	Apply grammatical structures to formulate sentences and correct word forms. (Apply)	-	-	-	1	-	-	-	-	3	3	-	2	-	-	-
C03	Use discourse markers to speak clearly on a specific topic in informal discussions. (Apply)	-	-	-	1	-	-	-	-	3	3	-	2	-	-	-
C04	Read / Listen the texts and write summaries based on global comprehension of these texts. (Understand)	-	-	-	1	-	-	-	-	3	3	-	2	-	-	-
C05	Prepare a coherent paragraph, essay, and resume. (Apply)	-	-	-	1	-	-	-	-	3	3	-	2	-	-	-
	Average value of CO	-	-	-	1.00	-	-	-	-	3.00	3.00	-	2.00	-	-	-
23FE03	LINEAR ALGEBRA & CALCULUS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C01	Apply matrix algebra techniques to solve engineering problems. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-
C02	Use Eigen values and Eigen vectors concept to find nature of quadratic form, inverse and powers of matrix. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-



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C03	Expand various functions using Mean value theorems. (Understand)	3	1	-	-	-	-	-	-	-	-	-	1	-	-	-
C04	Understand the concepts of functions of several variables which are useful in optimization. (Understand)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-
C05	Evaluate areas and volumes by using double and triple integrals. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-
	Average value of CO	3.00	1.80	-	-	-	-	-	-	-	-	-	1.00	-	-	-
23FE04	ENGINEERING PHYSICS	P01	P02	P03	-	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyze the intensity variation of light due to interference, diffraction, and Polarization (Apply) .	3	3	2	1	1	1	1	-	-	-	-	1	-	-	-
C02	Understand the basics of crystals and their structures (Understand) .	3	3	2	1	1	1	1	-	-	-	-	1	-	-	-
C03	Summarize various types of polarization of dielectrics and classify the magnetic materials (Understand)	3	3	2	1	1	1	-	-	-	-	-	1	-	-	-
C04	Explain fundamentals of quantum mechanics and free electron theory of metals (Understand) .	3	3	2	1	1	1	1	-	-	-	-	1	-	-	-
C05	Identify the type of semiconductor using Hall Effect (Apply)	3	3	2	1	1	1	1	-	-	-	-	1	-	-	-
	Average value of CO	3.00	3.00	2.00	1.00	1.00	1.00	1.00	-	-	-	-	1.00	-	-	-
23CM01	BASIC CIVIL ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Describe various sub-divisions of Civil Engineering and to appreciate their role in societal development. (Understand)	1	-	-	-	2	-	2	-	-	-	-	-	2	-	2
C02	Outline the concepts of surveying and obtain the theoretical measurement of distances, angles and levels through surveying.	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-



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	(Understand)															
C03	Classify the various materials used in construction and highway engineering and identify their appropriate usage as per the needs. (Understand)	1	-	-	-	2	-	2	-	-	-	-	-	-	-	2
C04	Illustrate the fundamental principles involved in transportation network system, their individual components and their engineering importance. (Understand)	1	-	-	-	1	-	-	-	-	-	-	3	-	-	-
C05	Explain the quality parameters of various water sources and functions of selected water storage and conveyance structures. (Understand)	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
	Average value of CO	1.00	-	-	-	1.60	-	2.00	-	-	1.00	-	3.00	2.00	-	2.00
23CM01	BASIC MECHANICAL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Summarize the different manufacturing processes. (Remember)	1	-	-	-	2	-	2	-	-	-	-	-	2	-	2
C02	Explain the basics of thermal engineering and its applications. (Understand)	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-
C03	Illustrate the working of different mechanical power transmission systems and power plants. (Understand)	1	-	-	-	2	-	2	-	-	-	-	-	-	-	2
C04	Describe the basics of robotics and its applications. (Understand)	1	-	-	-	1	-	-	-	-	-	-	3	-	-	-



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	Average value of CO	1.00	-	-	-	1.60	-	2.00	-	-	1.00	-	3.00	2.00	-	2.00
23ME01	ENGINEERING GRAPHICS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections. (Understand)	3	3	3	2	3	-	-	-	-	-	-	3	-	1	3
C02	Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views. (Apply)	3	3	1	2	1	-	-	-	-	-	-	3	-	1	3
C03	Understand and draw projection of solids in various positions in first quadrant. (Apply)	3	3	3	2	1	-	-	-	-	-	-	3	-	1	3
C04	Able to draw the development of surfaces of simple objects (Apply)	3	2	3	2	3	-	-	-	-	-	-	3	-	1	3
C05	Prepare isometric and orthographic sections of simple solids. (Apply)	2	3	3	2	1	-	-	-	-	-	-	3	-	1	3
	Average value of CO	2.80	2.80	2.60	2.00	1.80	-	-	-	-	-	-	3.00	-	1.00	3.00
23IT51	IT WORKSHOP	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the components of a PC and troubleshooting the malfunctioning of PC. (Apply)	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-
C02	Develop presentation /documentation using Office tools and LaTeX. (Apply)	3	-	-	-	-	-	-	-	-	-	-	-	2	-	1
C03	Build dialogs and documents using ChatGPT. (Apply)	3	-	-	3	-	-	-	-	-	-	-	-	-	-	2
C04	Improve individual / teamwork skills, communication and report writing skills with ethical values.	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
	Average value of CO	3.00	-	-	3.00	-	-	-	3.00	-	-	-	-	2.00	1.00	1.50



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23FE51	COMMUNICATIVE ENGLISH LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the different aspect of the English language proficiency with emphasis on LSRW skills. (Understand)	-	-	-	2	-	-	-	-	3	3	-	-	-	-	2
C02	Apply Communication Skills through various language learning activities. (Apply)	-	-	-	2	-	-	-	-	3	3	-	-	-	-	2
C03	Identifying the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking, comprehension. (Understand)	-	-	-	2	-	-	-	-	3	3	-	-	-	-	2
C04	Exhibit professionalism in participating in debates and group discussions. (Apply)	-	-	-	2	-	-	-	-	3	3	-	-	-	-	2
	Average value of CO	-	-	-	2.00	-	-	-	-	3.00	3.00	-	-	-	-	2.00
23FE53	ENGINEERING PHYSICS LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyze the wave properties of light using optical instruments (Apply) .	3	3	2	1	-	-	-	1	1	-	-	1	-	-	-
C02	Estimate the elastic modulii of various materials and acceleration due to gravity (Apply) .	3	3	2	1	-	-	-	1	1	-	-	1	-	-	-
C03	Demonstrate the vibrations in stretched strings (Understand) .	3	3	2	1	-	-	-	1	1	-	-	1	-	-	-
C04	Evaluate dielectric constant and magnetic field of circular coil carrying current (Apply) .	3	3	2	1	-	-	-	1	1	-	-	1	-	-	-
C05	Examine the characteristics of semiconductor devices (Apply) .	3	3	2	1	-	-	-	1	1	-	-	1	-	-	-
	Average value of CO	3.00	3.00	2.00	1.00	-	-	-	1.00	1.00	-	-	1.00	-	-	-
23ME51	ENGINEERING WORKSHOP	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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C01	Identify workshop tools and their operational capabilities. (Remember)	3	2	1	1	-	-	-	-	-	-	-	2	3	2	-
C02	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry, and welding. (Understand)	3	2	1	1	-	-	-	-	-	-	-	2	3	2	-
C03	Modal various basic prototypes in fitting trade. (Apply)	3	2	1	1	-	-	-	-	-	-	-	2	3	2	-
C04	Apply basic electrical engineering knowledge for House Wiring Practice (Apply)	3	2	1	1	-	-	-	-	-	-	-	2	3	2	-
	Average value of CO	3.00	2.00	1.00	1.00	-	-	-	-	-	-	-	2.00	3.00	2.00	-
23AU01	HEALTH AND WELLNESS, YOGA AND SPORTS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the importance of yoga and sports for Physical fitness and sound health. (Understand)	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-
C02	Demonstrate an understanding of health-related fitness components. (Apply)	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-
C03	Compare and contrast various activities that help enhance their health. (Understand)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
C04	Assess current personal fitness levels. (Apply)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
C05	Develop Positive Personality (Apply)	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-
	Average value of CO	-	-	-	-	-	2.00	-	-	-	-	-	2.00	-	-	-
II SEMESTER (II BTECH -I SEM)																
23FE05	DIFFERENTIAL EQUATIONS & VECTOR CALCULUS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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CO1	Solve the differential equations related to various engineering fields (Apply)	3	3	-	-	-	-	-	-	-	-	-	1	-	-	-
CO2	Apply knowledge of partial differentiation in modelling and solving of Partial differential equations. (Apply)	3	1	-	-	-	-	-	-	-	-	-	1	-	-	-
CO3	Interpret the physical meaning of different operators such as gradient, curl and divergence. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-
CO4	Evaluate the work done against a field, circulation and flux using VectorCalculus. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	-	-	-
	Average value of CO	3.00	2.00	-	-	-	-	-	-	-	-	-	1.00	-	-	-
23FE06	ENGINEERING CHEMISTRY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	Identify the troubles due to hardness of water and its maintenance in industrial applications. (Understand)	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-
CO2	Apply Nernst equation in calculating cell potentials, compare batteries for different applications and outline the principles of corrosion for design and effective maintenance of various devices. (Understand)	3	2	2	2		2	2	-	-	-	-	2	-	-	-
CO3	Outline the importance of polymers and alternate fuels. (Understand)	3	3	2	2		2	2	-	-	-	-	2	-	-	-
CO4	Summarize the suitability of engineering materials like composites, refractories, lubricants, and building materials. (Understand)	3	2	2	2		2	2	-	-	-	-	2	-	-	-



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C03	Interpret the problem and develop an algorithm to solve it. (Apply)	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C04	Implement various algorithms using the C programming language. (Apply)	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C05	Develop skills required for problem-solving and optimizing the code (Apply)	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
	Average value of CO	3.00	2.00	2.00	-	-	-	-	-	-	-	-	-	-	-	-
23ME02	ENGINEERING MECHANICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Determine the resultant of coplanar concurrent and non-concurrent force systems (Apply)	3	3	1	-	-	-	-	-	-	-	-	-	-	-	3
C02	Apply static equilibrium conditions to determine unknown planar force systems and determine the frictional forces for bodies in contact. (Apply)	3	3	2	1	-	-	-	-	-	-	-	-	-	-	3
C03	Calculate the centroids, center of gravity and moment of inertia of different geometrical shapes. (Apply)	3	2	-	2	-	-	-	-	-	-	-	-	-	-	3
C04	Apply the principles of work-energy and impulse-momentum to solve the problems of rectilinear and curvilinear motion of a particle. (Apply)	2	3	-	2	-	-	-	-	-	-	-	-	-	-	3
C05	Solve the problems involving the translational and rotational motion of rigid bodies. (Apply)	3	3	-	1	-	-	-	-	-	-	-	-	-	-	3
	Average value of CO	2.80	2.80	0.60	1.20	-	-	-	-	-	-	-	-	-	-	3.00
23FE54	ENGINEERING CHEMISTRY LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03



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C01	Analyze important parameters of water to check its suitability for drinking purposes and industrial applications. (Analyze)	3	2	-	-	-	1	2	-	-	-	-	-	-	-	-
C02	Acquire practical knowledge related to preparation of Bakelite and nanomaterials. (Apply)	3	-	1	-	-	2	1	-	-	-	-	-	-	-	-
C03	Distinguish different types of titrations in volumetric analysis after performing the experiments listed in the syllabus. (Apply)	3	2	1	-	-	-	2	-	-	-	-	-	-	-	-
C04	To estimate the amount of calcium in cement and the strength of acid present in Pb-Acid battery. (Apply)	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
C05	Improve individual / teamwork skills, communication and report writing skills with ethical values. (Apply)	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average value of CO	3.00	1.40	0.40	-	-	-	1.00	-	-	-	-	-	-	-	-
23EE51	ELECTRICAL & ELECTRONICS ENGINEERING WORKSHOP	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Compute voltage, current and power in an electrical circuit. (Apply)	3	2	-	-	-	-	-	2	3	2	-	1	-	-	-
C02	Compute medium resistance using Wheat stone bridge. (Apply)	2	2	-	2	-	-	-	2	2	2	-	-	-	-	-
C03	Discover critical field resistance and critical speed of DC shunt generators. (Apply)	2	2	2	2	-	-	-	2	2	2	-	-	-	2	-
C04	Estimate reactive power and power factor in electrical loads. (Understand)	2	2	-	3	-	-	-	2	3	2	-	1	2	-	-



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C05	Plot the characteristics of semiconductor devices. (Apply)	3	2	-	-	2	-	-	2	2	2	1	1	2	2	3
C06	Demonstrate the working of various logic gates using ICs. (Understand)	3	3	-	2	2	-	-	2	3	3	-	1	-	-	3
	Average value of CO	2.00	2.00	2.00	2.00	2.00	-	-	2.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00
23CS51	COMPUTER PROGRAMMING LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Read, understand, and trace the execution of programs written in C language. (Understand)	3	2	-	-	3	-	-	-	-	-	-	-	-	-	-
C02	Apply the right control structure for solving the problem. (Apply)	3	2	2	-	3	-	-	-	-	-	-	-	-	-	-
C03	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, pointers and files in C. (Apply)	3	2	2	-	3	-	-	-	-	-	-	-	-	-	-
C04	Improve individual / teamwork skills, communication and report writing skills with ethical values.	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-
	Average value of CO	3.00	2.00	2.00		3.00	-	-	2.00	2.00	2.00	2.00	2.00	-	-	-
23CE51	ENGINEERING MECHANICS AND BUILDING PRACTICES LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Illustrate the purpose and working of various tools and materials used in Civil Engineering practice (Understand) .	2	-	-	-	-	-	-	-	-	-	-	1	-	1	1
C02	Demonstrate the plumbing and safety practices adopted in construction industry and documentation aspects of quality testing of civil engineering materials (Understand) .	2	-	-	-	-	-	-	-	-	-	-	1	-	1	1
C03	Verify the fundamentals involved in	2	-	-	-	2	-	-	-	-	-	-	1	-	1	1



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	the applications of engineering mechanics (Apply)															
	Average value of CO	2.00	-	-	-	2.00	-	-	-	-	-	-	1.00	-	1.00	1.00
23AU02	NSS/NCC/SCOUTS & GUIDES/COMMUNITY SERVICE	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the importance of discipline, character and service motto. (Understand)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
C02	Solve some societal issues by applying acquired knowledge, facts, and techniques. (Apply)	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
C03	Explore human relationships by analyzing social problems. (Understand)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
C04	Determine to extend their help for the fellow beings and downtrodden people (Apply)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
C05	Develop leadership skills and civic responsibilities. (Apply)	-	-	-	-	-	1	-	-	3	-	-	-	-	-	-
	Average value of CO	-	-	-	-	-	2.00	-	-	3.00	-	-	-	-	-	-
III SEMESTER (II BTECH -I SEM)																
23FE08	NUMERICAL TECHNIQUES AND STATISTICAL METHODS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Evaluate the approximate roots of polynomial and transcendental equations by different algorithms. Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals (L3)	3	2	-	2	-	-	-	-	-	-	-	1	-	-	-



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C02	Apply numerical integral techniques to different Engineering problems. Apply different algorithms for approximating the solutions of ordinary differential equations with initial conditions to its analytical computations (L3)	3	2	-	2	-	-	-	-	-	-	-	1	-	-	-
C03	Apply discrete and continuous probability distributions (L3)	3	2	2	3	-	-	-	-	-	-	-	2	-	-	-
C04	Design the components of a classical hypothesis test (L4)	3	2	2	2	-	-	-	-	-	-	-	2	-	-	-
C05	Infer the statistical inferential methods based on small and large sampling tests (L4)	3	3	3	3	-	-	-	-	-	-	-	2	-	-	-
	Average value of CO	3.00	2.20	2.67	2.40	-	-	-	-	-	-	-	1.60	-	-	-
23HS01	UHV 2 - UNDERSTANDING HARMONY AND ETHICAL HUMAN CONDUCT	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Describe the terms like Natural Acceptance, Happiness and Prosperity (L2)	1	-	1	-	-	2	2	2	2	-	2	-	-	-	-
C02	Identify one's self, and one's surroundings (family, society nature) (L2)	1	-	1	-	-	2	2	2	2	-	2	-	-	-	-
C03	Relate human values with human relationship and human society. (L2)	1	-	1	-	-	3	3	3	3	-	3	-	-	-	-
C04	Illustrate the need for universal human values and harmonious existence (L2)	1	-	1	-	-	3	3	3	3	-	3	-	-	-	-
C05	Develop as socially and ecologically responsible engineers (L3)	1	-	1	-	-	3	3	3	3	-	3	-	-	-	-
	Average value of CO	1.00	-	1.00	-	-	2.60	2.60	2.60	2.60	-	2.60	-	-	-	-



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23CE01	SURVEYING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Summarize the principles and methods of surveying and measuring of horizontal and vertical- distances and angles. (Understand)	2	1	1	-	-	-	-	-	-	-	-	-	2	-	-
C02	Identify the source of errors and rectification methods. (Understand)	2	1	2	-	-	-	-	-	-	-	-	-	-	2	-
C03	Apply surveying principles to determine areas and volumes. (Apply)	3	2	-	-	-	-	-	-	-	-	-	-	-	2	-
C04	Setting out curves and using modern surveying equipment. (Apply)	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
C05	Understand the basics of Photogrammetry Surveying in field. (Understand)	3	1	2	-	-	-	-	-	-	-	-	-	2	2	-
	Average value of CO	2.40	1.20	1.20	-	-	-	-	-	-	-	-	-	0.80	1.20	-
23CE02	STRENGTH OF MATERIALS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	To relate the deformations with the stress strain characteristics of materials under axial loading. (Understand)	2	1	-	-	-	-	-	-	-	-	-	2	2	-	-
C02	To draw the diagrams indicating the variation of the key performance features like axial forces, bending moment and shear forces in	3	1	-	-	-	-	-	-	-	-	-	2	2	-	-



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	structural members. (Apply)															
C03	To calculate section modulus and for determination of stresses developed in the beams. (Apply)	3	1	-	-	-	-	-	-	-	-	-	2	2	-	-
C04	To compute the deflections due to various loading conditions. (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	2	-	-
C05	To determine stresses across sections of the thin, thick cylinders and columns to arrive at optimum sections to withstand the internal pressure using Lamé's equation. (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	2	-	-
	Average value of CO	2.80	1.40	-	-	-	-	-	-	-	-	-	2.00	2.00	-	-
23CE03	FLUID MECHANICS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the fluid properties, principles of fluid statics, and buoyancy. (Understand)	3	2	-	-	-	-	-	-	-	-	-	1	3	-	1
C02	Apply the laws of fluid statics and buoyancy. (Apply)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C03	Understand the fundamentals of fluid kinematics, dynamics, differentiate types of fluid flows and loss in pipes. (Understand)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C04	Derive and apply the principle of conservation of mass energy and momentum for flow measurement. (Apply)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C05	Compute the losses in pipes and discharge through pipe flows. (Apply)	3	2	-	-	-	-	-	-	-	-	-	1	3	-	1
	Average value of CO	3.00	2.80	-	-	-	-	-	-	-	-	-	1.00	3.00-	-	1.00



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23CE52	SURVEYING LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Handle various linear and angular measuring instruments (Apply)	-	1	1	2	1	-	-	-	-	-	2	2	2	-	-
C02	Measure the linear and angular measurements (Apply)	-	-	1	2	1	-	-	-	-	-	3	2	2	-	-
C03	Calculate the area and volume by interpreting the data obtained from surveying (Apply)	2	-	-	2	1	-	-	-	-	-	2	2	2	-	-
C04	Handle modern equipment such as total station (Apply)	1	2	-	-	3	-	-	-	-	-	2	1	1	-	-
C05	Prepare field notes from survey data (Understand)	2	1	-	-	-	-	-	-	-	2	2	1	1	-	-
	Average value of CO	1.00	0.8	0.40	1.20	1.20	-	-	-	-	0.40	2.2	1.60	1.60	-	-
23CE53	STRENGTH OF MATERIALS LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Conduct tensile strength test and draw stress-strain diagrams for ductile metals (Apply)	2	2	-	2	-	-	-	-	-	-	-	1	-	1	1
C02	Perform bending test and determine load-deflection curve of steel/wood (Apply)	2	2	-	2	-	-	-	-	-	-	-	1	-	1	1
C03	Able to conduct torsion test and determine torsion parameters (Apply)	2	2	-	2	-	-	-	-	-	-	-	1	-	1	1
C04	Perform hardness, impact and shear strength tests and calculate hardness numbers, impact and shear strengths (Apply)	2	2	-	2	-	-	-	-	-	-	-	1	-	1	1
C05	Able to conduct tests on closely coiled and open coiled springs and calculate deflections (Apply)	2	2	-	2	-	-	-	-	-	-	-	1	-	1	1
	Average value of CO	2.00	2.00	-	2.00	-	-	-	-	-	2.00	-	1.00	-	1.00	1.00
23CES1	BUILDING PLANNING AND	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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	DRAWING															
C01	Draw signs and bonds (Remember)	1	-	-	-	-	2	-	-	-	-	-	1	1	-	-
C02	Draw different building units (Remember)	1	-	-	-	-	2	-	-	-	-	-	1	1	-	-
C03	Plan various buildings as per the building by-laws. (Apply)	1	1	-	-	-	3	1	-	-	-	-	1	1	-	1
C04	Learn the skills of drawing building elements and plan the buildings as per requirements. (Apply)	1	1	-	-	-	3	1	-	-	-	-	1	1	-	1
	Average value of CO	1.00	1.00	-	-	-	2.50	1.00	-	-	-	-	1.00	1.00	-	1.00
23MC01	ENVIRONMENTAL SCIENCE	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	The necessity of resources, their exploitation and sustainable management (Understand - L2)	1	1	-	-	-	-	-	-	1	2	-	1	-	-	-
C02	The interactions of human and ecosystems and their role in the food web in the natural world and the global biodiversity, threats to biodiversity and its conservation. (Understand - L2)	1	-	-	-	-	-	-	-	1	2	-	1	-	-	-
C03	Environmental problems like pollution, disasters and possible solutions. (Remember - L1)	1	1	-	-	-	-	1	-	1	2	-	1	-	-	-
C04	The importance of environmental decision making in organizations through understanding the environmental law and environmental audits. (Remember - L1)	1	1	-	-	-	-	1	-	1	2	-	1	-	-	-
C05	Environmental issues like over population, human health etc related to local, regional and global levels.	1	1	-	-	-	-	1	-	1	2	-	1	-	-	-



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	(Understand - L2)															
	Average value of CO	1.00	1.00	-	-	-	-	1.00	-	1.00	2.00	-	1.00	-	-	-
IV SEMESTER (II BTECH -II SEM)																
23HS02	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Define the concepts related to Managerial Economics, Financial Accounting and Management (L2)	2	3	1	2	-	-	-	-	-	-	-	-	-	-	-
C02	Understand the Fundamentals of Economics viz., Demand, Production, Cost, Revenue and Markets (L2)	2	3	2	1	1	-	-	-	-	-	-	-	-	-	-
C03	Apply the Concept of Production cost and Revenues for effective Business Decision (L3)	3	2	1	2	2	-	-	-	-	-	-	-	-	-	-
C04	Evaluate the Capital Budgeting Techniques. (L3)	3	2	1	2	1	-	-	-	-	-	-	-	-	-	-
C05	Develop the Accounting Statements and Evaluate the Financial Performance of Business Entity (L4)	2	3	2	1	3	-	-	-	-	-	-	-	-	-	-
	Average value of CO	2.40	2.60	1.40	1.60	1.75	-	-	-	-	-	-	-	-	-	-
23CE04	ENGINEERING GEOLOGY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Understand and interpret fundamental geological processes and geological formations. (Understand)	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
C02	Differentiate various properties of minerals and rocks. (Understand)	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
C03	Illustrate geological structural features (Understand)	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-



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C04	Understand geological principles in civil engineering applications. (Understand)	1	1	1	-	-	-	-	-	-	-	-	1	-	-	-
	Average value of CO	1.00	1.00	1.00	-	-	-	-	-	-	-	-	1.00	-	-	-
23CE05	CONCRETE TECHNOLOGY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Familiarize the basic ingredients of concrete and their role in the production of concrete and its behaviour in the field. (Remember)	1	-	-	-	2	-	2	-	-	-	-	-	2	-	2
C02	Test the fresh concrete properties and the hardened concrete properties. Understand the basic concepts of concrete. Design the concrete mix by BIS method. (Understand)	-	-	-	-	2	-	2	-	-	-	-	-	-	2	3
C03	Determine the ingredients of concrete through lab test results. realize the importance of quality of concrete (Understand)	1	-	-	-	2	-	1	-	-	-	-	-	-	2	3
C04	Understand the behaviour of concrete in various environments. (Understand)	1	-	-	1	-	-	2	-	-	-	-	-	-	-	2
C05	Familiarize the basic concepts of special concrete and their production and applications. (Remember)	1	-	-	3	1	2	2	-	-	-	-	2	-	-	3
	Average value of CO	1.00	-	-	1.00	1.75	2.00	2.25	-	-	-	-	2.00	2.00	2.00	2.60
23CE06	STRUCTURAL ANALYSIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Apply energy theorems to analyze trusses (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	3	-	2
C02	Determine unknown reactions of indeterminate structures by using Castigliano 's-II Theorem (Apply) .	3	2	-	-	-	-	-	-	-	-	-	2	3	-	2



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C03	Compute the internal forces of members in fixed and continuous beams (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	3	-	2
C04	Evaluate the internal forces of members portal frames by using slope-deflection method (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	3	-	2
C05	Analyze continuous beams and portal frames by using Moment – distribution method (Apply)	3	2	-	-	-	-	-	-	-	-	-	2	3	-	2
	Average value of CO	3.00	2.00	-	-	-	-	-	-	-	-	-	2.00	3.00	-	2.00
23CE07	HYDRAULICS AND HYRAULIC MACHINERY	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the characteristics of laminar and turbulent flows. (Understand)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C02	Understand the fundamentals in open channel flow (Understand)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C03	Apply the knowledge of fluid mechanics to solve the uniform and non-uniform flow problems in open channels. (Apply)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C04	Understand the principles, losses and its efficiencies of centrifugal pumps (Understand)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C05	Determine the performance of impact of jets on plates, Pelton wheel, and Franci's turbine and centrifugal pump (Apply)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
	Average value of CO	3.00	3.00	-	-	-	-	-	-	-	-	-	1.00	3.00	-	1.00
23CE54	CONCRETE TECHNOLOGY LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Outline importance of testing cement	1	-	-	3	1	3	2	-	-	-	-	-	-	1	1



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	and its properties (Apply)															
C02	Assess different properties of aggregates (Apply)	-	-	-	3	1	3	2	-	-	-	-	-	-	2	2
C03	Assess fresh concrete properties and their relevance to hardened concrete (Apply)	-	-	-	3	1	3	2	-	-	-	-	-	-	3	3
C04	Assess hardened concrete properties (Apply)	-	-	-	3	1	3	2	-	-	-	-	-	-	3	2
	Average value of CO	1.00	-	-	3.00	1.00	3.00	2.00	-	-	-	-	-	-	2.25	2.00
23CE55	ENGINEERING GEOLOGY LAB	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Demonstrate the importance of geological principles. (Understand)	1	-	1	-	-	-	-	-	1	2	-	1	-	-	-
C02	Distinguish various types of minerals and rocks based on physical properties and physical observations. (Understand)	1	-	-	-	-	-	-	-	1	2	-	1	-	-	-
C03	Interpret structural patterns of various geological structures. (Understand)	1	-	1	-	-	-	1	-	1	2	-	1	-	-	-
	Average value of CO	1.00	-	1.00	-	-	-	1.00	-	1.00	2.00	-	1.00	-	-	-
23CES2	REMOTE SENSING & GEOGRAPHICAL INFORMATION SYSTEMS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Acquire knowledge about concepts of Remote Sensing and GIS applications. (Understand)	2	-	-	-	-	-	-	-	-	-	-	1	2	-	1
C02	Perform digital image analysis and interpret digital image characteristics. (Understand)	2	-	-	-	-	-	-	-	-	-	-	1	2	-	1
C03	Digitize and create thematic map and extract important features to calculate geometry. (Apply)	3	2	-	-	3	-	-	-	1	2	-	1	-	2	1



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C04	Illustrate the GIS applications for developing elevations using TIN/DEM and stream ordering map. (Understand)	3	2	-	-	3	-	-	-	1	2	-	1	-	2	1
C05	Apply GIS software to perform simple analysis for Civil Engineering problems (Apply)	3	2	-	-	3	-	-	-	1	2	-	1	-	2	1
	Average value of CO	2.60	2.00	-	-	3.00	-	-	-	1.00	2.00	-	1.00	2.00	2.00	1.00
23ME57	DESIGN THINKING & INNOVATION	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Apply fundamental design components, principles, and new materials to create and improve design projects. (Applying-L3)	2	1	-	-	3	-	-	-	-	-	-	2	-	3	-
C02	Apply the design thinking process to develop and present innovative product solutions. (Applying-L3)	1	2	2	-	3	-	-	-	-	-	-	2	-	3	-
C03	Analyze the relationship between creativity and innovation, evaluate their roles in organizations, and develop strategic plans for transforming creative ideas into innovative solutions. (Analyzing-L4)	3	3	-	2	3	-	-	-	-	-	-	3	-	-	3
C04	Analyze to work in a multidisciplinary environment. (Analyzing-L4)	1	1	-	-	3	-	-	-	-	-	-	2	-	-	3
C05	Apply design thinking principles to address business challenges, develop and test business models and prototypes, and evaluate the value of creativity. (Evaluating-L5)	1	1	-	-	3	-	-	-	-	-	-	2	-	-	3
	Average value of CO	1.60	1.60	2.00	2.00	3.00	-	-	-	-	-	-	2.20	-	3.00	3.00



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DEPARTMENT OF CIVIL ENGINEERING

23MC02	BUILDING MATERIALS AND CONSTRUCTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Understand the preparation process and the composition of construction materials such as Stones, bricks and timber. (Understand)	1	-	-	-	-	1	2	-	-	-	-	1	1	-	1
C02	Describe the sources, constituents and storage of lime and cement for their appropriate usage as building materials based on their specific attributes. (Understand)	1	-	-	-	-	1	2	-	-	-	-	1	1	-	1
C03	Identify the different components in a building and their specific purpose in the building. (Remember)	1	-	-	-	-	1	2	-	-	-	-	1	1	-	1
C04	Classify the various types of mortars, masonry components and finishings used in the buildings. (Remember)	1	-	-	-	-	1	2	-	-	-	-	1	1	-	1
C05	Identify the uses, good and faulty characteristics of different building materials. (Remember)	1	-	-	-	-	1	2	-	-	-	-	1	1	-	1
	Average value of CO	1.00	-	-	-	-	1.00	2.00	-	-	-	-	1.00	1.00	-	1.00
V SEMESTER (III BTECH -I SEM)																
23CE08	DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Understand the fundamental procedures and guidelines given in relevant IS Codes for design of various RCC elements such as beams, columns, foundations, slabs, shear reinforcement, under Working stress and Limit State methods	1	-	-	-	2	-	2	-	-	-	-	-	2	-	2



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C04	Develop unit hydrograph and synthetic hydrograph, and estimate flood magnitude and carry out flood routing. (Apply-L3)	3	-	-	-	-	-	-	-	-	-	-	-	3	-	1
C05	Determine aquifer parameters and yield of wells. (Apply-L3)	3	-	-	2	-	-	-	-	-	-	-	-	3	-	1
	Average value of CO	3.00	-	-	2.00	-	-	-	-	-	-	-	-	3.00	-	1.00
23CE10	GEOTECHNICAL ENGINEERING- I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the soil formation, its index properties and classification. (Understand-L2)	2	3	-	-	-	-	-	-	-	-	-	1	2	-	1
C02	Understand the soil moisture and flow of water through soils and its effects. (Understand-L2)	2	2	-	-	-	-	-	-	-	-	-	1	2	-	1
C03	Evaluate the stress distribution of soil subjected to different loading conditions. (Apply-L3)	3	3	-	-	-	-	-	-	-	-	-	1	2	-	1
C04	Understand Compaction and Compressibility characteristics under partially saturated and fully saturated conditions. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	2	-	1
C05	Evaluate the shear strength of soil at different loading & drainage conditions for different soils. (Apply-L3)	3	3	-	-	-	-	-	-	-	-	-	1	2	-	1
	Average value of CO	2.60	2.80	-	-	-	-	-	-	-	-	-	1.00	2.00	-	1.00
23CE11	ADVANCED STRUCTURAL ANALYSIS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Differentiate Determinate and Indeterminate Structures (Apply-L3)	3	2	-	-	-	-	-	-	-	-	-	1	2	-	1



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C02	Analyze three and two hinged arches (Apply-L3)	3	2	-	-	-	-	-	-	-	-	-	1	2	-	1
C03	Carryout lateral Load analysis of structures (Apply-L3)	3	2	-	-	-	-	-	-	-	-	-	1	2	-	1
C04	Analyze Cable and Suspension Bridge structures (Apply-L3)	3	2	-	-	-	-	-	-	-	-	-	1	2	-	1
C05	Analyze structures using Moment Distribution, Kani's Method (Apply- L4)	3	2	-	-	-	-	-	-	-	-	-	1	2	-	1
	Average value of CO	3.00	2.00	-	-	-	-	-	-	-	-	-	1.00	2.00	-	1.00
23CE12	ARCHITECTURE AND TOWN PLANNING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the distinguish architectural styles of eastern and western world. (Understand-L2)	1	-	-	-	-	1	1	-	-	1	-	1	-	-	1
C02	Understand the importance of Orders of architecture. (Understand-L2)	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-
C03	Assess the compose spaces of buildings using design concepts, planning principles. (Understand- L2)	1	-	-	-	-	1	-	-	-	1	-	1	-	-	1
C04	Understand the town planning standards, landscaping features and regulations controlling expansion of the towns and the cities. (Apply-L3)	1	-	-	-	-	1	-	-	-	1	-	1	-	-	1
	Average value of CO	1.00	-	-	-	-	1.00	1.00	-	-	1.00	-	1.00	-	-	1.00
23CE13	CONSTRUCTION TECHNOLOGY & MANAGEMENT	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Appreciate the importance of construction planning and the Stakeholders involved (Understand- L2)	-	-	-	-	-	-	1	-	-	-	3	1	1	-	-



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C02	Understand the functioning of various earthmoving equipment and construction techniques (Understand-L2)	-	-	-	-	-	-	2	-	-	-	2	1	1	-	-
C03	Distinguish the methods of production of aggregate products and concreting (Understand - L2)	-	-	-	-	-	-	2	-	-	-	2	1	1	-	-
C04	Apply the project management and construction techniques using CPM and PERT to practical problems (Apply - L3)	2	-	-	-	-	-	2	-	-	-	3	1	1	-	-
	Average value of CO	2.00	-	-	-	-	-	1.75	-	-	-	2.50	1.00	1.00	-	-
23CE14	SAFETY ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the causes of accidents related to construction activities, role of stakeholders, and human factors associated with these accidents. (Understand - L2)	-	-	2	-	1	2	-	1	1	1	1	-	-	-	1
C02	Recognize the safety requirements in the construction operations and develop guidelines to ensure safety at construction site. (Understand - L2)	-	-	2	-	1	2	-	1	1	1	1	-	-	-	1
C03	Describe and deal with the safety requirements while dealing with machinery and materials during construction. (Understand - L2)	-	-	2	-	1	2	-	1	1	1	1	-	-	-	1
C04	Realize the legal provisions and Acts with respect to the health and welfare of workers at construction site. (Understand - L2)	-	-	2	-	1	2	-	1	1	1	1	-	-	-	1
C05	Identify the appropriate safety and precautionary measures to be taken	-	-	2	-	1	2	-	1	1	1	1	-	-	-	1



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	at a demolition site. (Understand - L2)															
	Average value of CO	-	-	2.00	-	1.00	2.00	-	1.00	1.00	1.00	1.00	-	-	-	1.00
23CE56	GEOTECHNICAL ENGINEERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	Perform the index and engineering properties of the soil and interpret the results. (Apply- L3)	3	-	-	3	-	-	-	-	-	-	-	1	-	3	1
CO2	Perform the Strength, compaction and consolidation properties of the soil and interpret the results. (Apply- L3)	3	-	-	3	-	-	-	-	-	-	-	1	-	3	1
CO3	Apply field conditions for computing and analyzing experimental data. (Apply-L3)	1	-	-	3	-	-	-	-	-	-	-	1	-	2	1
-	Average value of CO	2.33	-	-	3.00	-	-	-	-	-	-	-	1.00		2.66	1.00
23CE57	HYDRAULICS AND HYDRAULIC MACHINERY LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	Demonstrate knowledge on the fundamental principles of fluid flow. (Apply-L3)	3	-	-	3	-	-	-	-	-	-	-	-	-	2	1
CO2	Apply the laws of conservation of mass, energy, and momentum to solve practical problems in fluid mechanics. (Apply-L3)	3	-	-	3	-	-	-	-	-	-	-	-	-	2	1
CO3	Select the required flow rate, pressure rise and the proper hydraulic turbines and pumps. (Understand-L2)	3	-	-	3	-	-	-	-	-	-	-	-	-	2	1
	Average value of CO	3.00	-	-	3.00	-	-	-	-	-	-	-	-	-	2.00	1.00
23CES3	ESTIMATION, SPECIFICATION AND CONTRACTS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03



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C01	The student should be able to determine the quantities of different components of buildings.	2	-	-	-	-	-	-	-	-	-	-	2	-	-	2
C02	The student should be in a position of find the cost of various building components.	2	-	-	-	-	-	-	-	-	-	-	2	-	-	2
C03	The student should be capable of finalizing the value of structures.	2	-	-	-	-	-	-	-	-	-	-	2	-	-	2
	Average value of CO	2.00	-	-	-	-	-	-	-	-	-	-	2.00	-	-	2.00
23EM01	TINKERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Turn ideas into reality by brainstorming, modelling and prototyping. (Applying L3)	2	3	3	2	2	1	1	-	1	-	-	-	-	2	-
C02	Inculcate innovative and entrepreneurial mind-set through Design thinking and Hands-on Learning. (Applying-L3)	2	3	3	2	2	1	1	-	1	-	-	-	-	2	-
C03	Develop basic knowledge in electrical and mechanical engineering principles. (Applying-L3)	2	3	3	2	2	1	1	-	1	-	-	-	-	2	-
C04	Develop skills of using hand tools to construct a prototype of an engineering design. (Applying L3)	2	3	3	2	2	1	1		1						
	Average value of CO	2.00	3.00	3.00	2.00	2.00	1.00	1.00	-	1.00	-	-	-	-	2.00	-
VI SEMESTER (III BTECH -II SEM)																
23CE15	DESIGN AND DRAWING OF STEEL STRUCTURES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Design the different types of connections (Riveted and Welded) in steel members (Apply-L3)	2	-	3	-	-	-	-	-	-	-	-	1	1	-	1
C02	Design of Simple and compound beams and check its stability as per IS	2	-	3	-	-	-	-	-	-	-	-	1	1	-	1



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	code (Apply-L3)															
C03	Design of Tension, compression members (Apply-L3)	2	-	3	-	-	-	-	-	-	-	-	1	1	-	1
C04	Design of compression members, column bases subjected to point loads and moments (Apply-L3)	2	-	3	-	-	-	-	-	-	-	-	1	1	-	1
C05	Design of Plate girder and IS code Recommendations (Apply-L3)	2	-	3	-	-	-	-	-	-	-	-	1	1	-	1
	Average value of CO	2.00	-	3.00	-	-	-	-	-	-	-	-	1.00	1.00	-	1.00
23CE16	HIGHWAY ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the fundamentals of planning, development, geometric elements, maintenance strategies and traffic parameters of highway. (Understand-L2)	1	-	-	-	-	-	-	-	-	2	-	1	-	1	1
C02	Determine the geometric elements of highway in accordance with IRC Standards for the effective road layout. (Apply-L3)	-	-	2	-	-	-	-	-	-	1	-	-	1	-	-
C03	Identify the suitable highway materials based on their physical and mechanical properties. (Understand-L2)	1	-	-	1	-	-	1	-	-	-	-	-	-	-	1
C04	Design the elements of highway in accordance with the IRC standards. (Apply-L3)	-	2	1	-	-	-	-	-	-	-	-	1	1	-	-
	Average value of CO	1.00	2.00	1.50	1.00	-	-	1.00	-	-	1.50	-	1.00	1.00	1.00	1.00
23CE17	ENVIRONMENTAL ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Recognize the basic aspects involved in the population projection, water conveyance and distribution approaches for a community, classify	3	-	-	-	-	2	-	-	-	-	-	1	2	-	1



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	the appropriate water sources and estimate the water demand (Understand-L2)															
C02	Establish the proper water and wastewater quality parameters and the associated environmental impacts on the receptors (Understand - L2)	3	-	-	-	-	2	-	-	-	-	-	1	2	-	1
C03	Identify the appropriate water treatment system to be adopted based on the fundamental principles (Understand- L2)	3	3	3	-	-	2	-	-	-	-	-	1	3	-	1
C04	Identify the appropriate wastewater treatment system, sludge disposal and septic tank options to be adopted based on the fundamental principles (Understand- L2)	3	3	3	-	-	2	-	-	-	-	-	1	3	-	1
C05	Estimate the quantity of sewage generation, and design the appropriate treatment units for the treatment of water and wastewater (Apply-L3)	2	-	-	-	-	2	-	-	-	-	-	1	2	-	1
	Average value of CO	2.60	3.00	3.00	-	-	2.00	-	-	-	-	-	1.00	2.40	-	1.00
23CE18	GROUND IMPROVEMENT TECHNIQUES	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the knowledge of various densification methods of ground improvement and their suitability to different field situations. (Understand-L2)	2	-	-	-	-	-	-	-	-	-	-	1	-	-	1
C02	Understand the dewatering and well points techniques to improve the	2	-	-	-	-	-	-	-	-	-	-	1	-	-	1



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	ground. (Understand-L2)															
C03	Understand the different types of stabilization methods and grouting techniques to improve the ground. (Understand-L2)	2	-	-	-	-	-	-	-	-	-	-	1	-	-	1
C04	Understand the concept and principles of Reinforced earth to stabilize the ground. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	-	-	1
C05	Understand the various functions of Geosynthetics and their applications in Civil Engineering practice. (Understand-L2)	2	-	-	-	-	-	-	-	-	-	-	1	-	-	1
	Average value of CO	2.20	3.00	-	-	-	-	-	-	-	-	-	1.00	-	-	1.00
23CE19	LOW-COST AND ECO-FRIENDLY BUILDING TECHNIQUES	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Illustrate the concepts of traditional building materials and eco-friendly building materials for construction. (Understand - L1)	1	-	-	-	1	1	1	-	-	-	-	1	-	-	2
C02	Understand the developments of building technologies in foundations, walls and roofs. (Understand-L2)	1	-	-	-	1	1	1	-	-	-	-	1	-	-	2
C03	Describe prefabrication techniques and assess the wind effects on low rise buildings. (Understand-L2)	1	-	-	-	1	-	1	-	-	-	-	1	-	-	2
C04	Demonstrate the construction of houses in rural areas and disaster prone areas. (Understand-L2)	1	-	-	-	1	1	1	-	-	-	-	1	-	-	2
	Average value of CO	1.00	-	-	-	1.00	1.00	1.00	-	-	-	-	1.00	-	-	2.00
23CE20	REPAIR AND REHABILITATION OF STRUCTURES	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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C01	Understand the mechanisms of degradation of concrete structures. (Understand-L2)	2	1	-	-	-	-	-	-	-	-	-	1	-	-	1
C02	Design and suggest repair strategies for deteriorated concrete structures including Repairing with composites. (Apply-L3)	3	1	-	-	-	-	-	-	-	-	-	1	-	-	1
C03	Select appropriate repair material and rehabilitation strategy. (Understand - L2)	2	1	-	-	-	-	-	-	-	-	-	1	-	-	1
C04	Describe the application and use of fiber reinforced concrete, high performance concrete and self compacting concrete. (Understand - L2)	2	1	-	-	-	-	-	-	-	-	-	1	-	-	1
	Average value of CO	2.25	1.00	-	-	-	-	-	-	-	-	-	1.00	-	-	1.00
23CE21	VALUATION AND QUANTITY SURVEY	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Estimate the quantities for various types of structures and contract document. (Apply-L3)	2	1	-	-	3	-	-	-	-	-	-	-	-	3	1
C02	Calculate the quantities of different items in buildings and roads from drawings and explain its general specification and rate analysis. (Apply-L3)	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-
C03	Prepare detailed measurements (including BBS) and BoQ of various work like buildings, earth work for road, sanitary and water supply work. (Understand-L2)	1	-	-	-	3	-	-	2	-	-	-	-	1	2	-
C04	Perform valuation of land buildings	-	1	-	2	-	-	-	-	-	-	2	-	-	-	-



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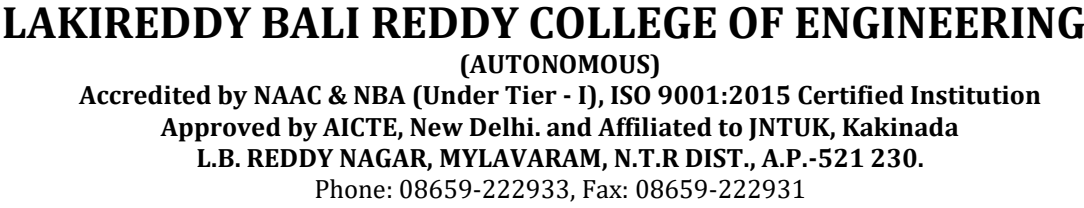
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DEPARTMENT OF CIVIL ENGINEERING

	using different methods of valuation. (Understand-L2)															
	Average value of CO	1.50	1.00	2.00	2.00	3.00	-	-	2.00	-	-	2.00	-	1.50	2.50	1.00
23CE22	GREEN BUILDINGS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Describe the need, benefits and key features of green buildings (Understand - L2).	-	-	-	-	-	2	2	-	-	-	-	-	-	-	2
C02	Understand the green building rating concept and energy efficiency in green buildings (Understand - L2).	-	-	-	-	-	3	3	-	-	-	-	-	-	-	2
C03	C03: Identify the importance of energy demand reduction in the design of green buildings. (Understand - L2)	-	-	-	-	-	3	3	-	-	-	-	-	-	-	2
C04	Describe the requirements of different energy units installation and operation by referring to suitable case studies of green buildings. (Understand - L2)	-	-	-	-	-	3	3	-	-	-	-	-	-	-	2
C05	Understand the waste management and methods for improving air quality in green buildings (Understand - L2)	-	-	-	-	-	3	3	-	-	-	-	-	-	-	2
	Average value of CO	-	-	-	-	-	2.00	2.00	-	-	-	-	-	-	-	2.00
23CE23	FINITE ELEMENT METHODS IN CIVIL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Develop finite element formulations of 1degree of freedom problems and solve Them (Understand - L2).	1	1	-	2	-	2	2	-	-	-	-	1	2	2	1
C02	Understand any Finite Elements of ware to perform stress, thermal and modal Analysis (Understand - L2).	1	1	-	2	-	2	2	-	-	-	-	1	2	2	1

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C05	Analyze stability of gravity and earth dams. Design of hydraulic ogee spillways. (Apply-L3)	3	-	-	2	-	-	-	-	-	-	-	-	3	-	1
	Average value of CO	3.00	-	-	2.00	-	-	-	-	-	-	-	-	3.00	-	1.00
23CE58	ENVIRONMENTAL ENGINEERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Determine few important characteristics of water and wastewater in the laboratory (Apply-L3)	3	-	-	-	3	-	-	-	-	3	-	1	-	2	1
C02	Draw some conclusions based on prevailing standards about (i) suitability of water for a specific purpose (ii) options for the appropriate treatment options and ultimate disposal of sewage. (Apply-L3)	3	-	-	-	3	-	-	-	-	3	-	1	-	2	1
C03	Interpret the impacts of the water or wastewater on the local environment (Understand-L2)	2	-	-	-	2	-	-	-	-	2	-	1	-	2	1
	Average value of CO	3.00	-	-	-	3.00	-	-	-	-	2.67	-	1.00	-	2.00	1.00
23CE59	HIGHWAY ENGINEERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Assess the properties of highway construction materials such as aggregates and bitumen. (Apply- L-3)	1	-	-	-	-	1	-	-	1	-	-	-	-	2	-
C02	Determine the optimum binder content with Marshall stability value. (Understand- L-2)	1	-	-	-	-	1	-	-	1	-	-	-	-	2	-
C03	Analyze the test results and evaluate their suitability for pavement design and construction. (Apply- L-2)	1	-	-	-	-	1	-	-	1	-	-	-	-	2	-



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	Average value of CO	1.00	-	-	-	-	1.00	-	-	1.00	-	-	-	-	2.00	-
23CES4	CAD LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Apply structural analysis software to analyze and design the beams, 2D and 3D frames (Apply-L3)	-	-	3	-	2	-	-	-	-	2	-	1	-	3	2
C02	Design the retaining walls and foundations using STAAD Pro (Apply-L3)	-	-	3	-	2	-	-	-	-	2	-	1	-	3	2
C03	Draw the details of RCC and steel structural elements using Auto CAD. (Apply-L3)	-	-	3	-	2	-	-	-	-	2	-	1	-	3	2
	Average value of CO	-	-	3.00	-	2.00	-	-	-	-	2.00	-	1.00	-	3.00	2.00
VII SEMESTER (IV BTECH - I SEM)																
23CE26	GEOTECHNICAL ENGINEERING-2	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Understand Soil exploration methods and field tests. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C02	Understand earth pressure theories. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C03	Understand stability of slopes. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C04	Analyze the shallow foundations. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
C05	Analyze the deep foundations. (Understand-L2)	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1
	Average value of CO	3.00	3.00	-	-	-	-	-	-	-	-	-	1.00	3.00	-	1.00
23CE27	ADVANCE CONSTRUCTION MANAGEMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Explore the quality assurance, quality control and construction safety	3	2	-	-	-	2	3	-	-	-	2	-	-	3	2



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	methods (Understand -L2)															
C02	Prepare project estimates and perform cost control analysis. (Understand -L2)	2	2	-	-	-	-	-	-	-	-	3	-	2	-	3
C03	Plan and manage construction materials and machinery efficiently. (Understand -L2)	2	2	1	-	-	-	-	-	1	-	3	-	-	-	3
C04	Utilize BIM & Advanced Design Tools applications in planning, coordination and project management. (Understand -L2)	1	2	2	-	3	-	-	-	1	-	3	-	3	-	2
C05	Summarize the principles of smart sustainable construction techniques and green building practices. (Understand -L2)	2	2	-	-	1	3	3	-	-	-	1	-	-	-	3
	Average value of CO	2.00	2.00	1.50	-	2.00	2.50	3.00	-	1.00	-	2.40	-	2.50	3.00	2.60
23CE28	PRE-STRESSED CONCRETE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Describe the basic concepts and general mechanical behavior of prestressed concrete, available IS Codes, and various methods of prestressing. (Remembering - L1)	1	1	1	-	-	1	-	-	-	-	-	1	1	-	2
C02	Analyze the different losses of pre-stressing (Apply-L3)	1	1	3	-	-	1	-	-	1	-	-	1	1	-	1
C03	Design prestressed concrete beams under flexure. (Apply-L3)	1	1	3	-	-	1	-	-	1	-	-	1	1	-	1
C04	Design prestressed concrete beams under shear and torsion and interpret the relevant IS code provisions for prestressed concrete. (Apply-L3)	1	1	3	-	-	1	-	-	1	-	-	1	1	-	1
	Average value of CO	1.00	1.00	2.50	-	-	1.00	-	-	1.00	-	-	1.00	1.00	-	1.25



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23CE29	ADVANCED ENVIRONMENTAL ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Comprehend the importance of self-purification of streams; DO balance in streams, and the impacts of various pollutants on receiving streams (Understand-L2).	3	2	2	-	-	2	-	-	-	-	1	3	-	1	3
C02	Categorize the advanced treatment approaches in the advanced biological treatment of wastewater (Understand-L2)	3	2	2	-	-	2	-	-	-	-	1	3	-	1	3
C03	Analyze the wastewater generation, its characteristics and treatment operations from selected industries, and develop plans for the treatment of wastewater from other industrial sectors (Understand-L2).	3	2	2	-	-	2	-	-	-	-	1	3	-	1	3
C04	Recognize the options available for development of strategies for a comprehensive solid waste management and noise pollution in the community. (Understand-L2).	3	2	2	-	-	2	-	-	-	-	1	3	-	1	3
C05	Identify the basic principles of air pollution, its impacts, dispersion, and control strategies. (Understand-L2).	3	2	2	-	-	2	-	-	-	-	1	3	-	1	3
	Average value of CO	3.00	2.00	2.00	-	-	2.00	-	-	-	-	1.00	3.00	-	1.00	3.00
23CE30	DESIGN & DRAWING OF IRRIGATION STRUCTURES	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the principles and design criteria of surplus weirs and prepare detailed drawings.	3	3	-	-	-	-	-	-	-	-	-	1	3	-	1



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C05	Describe the damage caused by fire & exercise due care for fire safety. (Understand)	2	-	-	-	-	1	-	-	-	-	-	-	-	-	1
	Average value of CO	2.00	-	-	-	-	1.00	-	-	-	-	-	-	-	-	1.00
23CE32	ADVANCED STRUCTURAL ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Design raft foundations and different types of RCC retaining walls (Apply-L3)	1	-	-	-	2	-	2	-	-	-	-	-	2	-	2
C02	Carryout analysis and design of different types of RCC water tanks (Apply-L3)	-	-	-	-	2	-	2	-	-	-	-	-	-	2	3
C03	Solve the problems regarding design of RCC Bunkers, Silos and Chimneys (Apply-L3)	1	-	-	-	2	-	1	-	-	-	-	-	-	2	3
C04	Understand the concepts of prefabricated construction. (Apply-L3)	1	-	-	1	-	-	2	-	-	-	-	-	-	-	2
	Average value of CO	1.00	-	-	1.00	2.00	-	1.75	-	-	-	-	-	2.00	2.00	2.50
23CE33	ENVIRONMENTAL IMPACT ASSESSMENT	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the basics, types and terminology of EIA, Role of stakeholders and GIS in EIA, and Environmental economics (Understand-L2)	3	-	-	-	-	-	-	-	-	-	-	1	1	-	1
C02	Explore the different EIA methodologies, their advantages and disadvantages (Understand-L2)	2	2	-	-	-	-	-	-	-	-	-	1	1	-	1
C03	Interpret the methodologies available for analyzing air, water and soil environments (Understand-L2)	2	2	-	-	-	-	-	-	-	-	-	1	1	-	1



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C04	Comprehend the methodologies available for Risk assessment in EIA, analyzing impacts on vegetation and wild life (Understand-L2)	2	2	-	-	-	-	-	-	-	-	-	1	1	-	1
C05	Recognize the available Regulatory guidelines available for executing EIA, ISO and other Environmental Management procedures (Understand-L2)	2	1	-	-	-	-	-	-	-	-	-	1	1	-	1
	Average value of CO	2.20	1.75	-	-	-	-	-	-	-	-	-	1.00	1.00	-	1.00
23CE34	RAILWAYS AND AIRPORT ENGINEERING	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand and explain the components and behavior of railway track systems including permanent way elements and rail interactions. (Understand-L2)	2	-	-	-	-	-	-	-	-	-	-	1	1	-	1
C02	Analyze and design railway track geometry for safe and efficient train movement. (Apply-L3)	2	-	-	-	-	-	1	-	-	-	-	1	1	-	1
C03	Evaluate railway track layouts, turnouts, crossings, and signaling systems for operational control. (Understand-L2)	2	-	-	-	-	-	1	-	-	-	-	1	1	-	1
C04	Assess and plan airport layout, site selection, and operational facilities. (Understand-L2)	2	-	-	-	-	-	-	-	-	-	-	1	1	-	1
C05	Design and evaluate airfield pavements, drainage systems, and maintenance strategies. (Apply-L3)	2	-	-	-	-	-	-	-	-	-	-	1	1	-	1
	Average value of CO	2.00	-	-	-	-	-	1.00	-	-	-	-	1.00	1.00	-	1.00
23CE35	WATERSHED MANAGEMENT	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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C01	Determine watershed parameters and analyse watershed characteristics to take appropriate Management action. (Understand-L2)	3	2	-	-	1	-	2	-	-	-	-	-	1	-	1
C02	Quantify soil erosion and design control measures. (Understand-L2)	3	3	2	1	1	-	2	-	-	-	-	-	1	-	1
C03	Recommend suitable harvesting techniques for better watershed management. (Understand-L2)	3	2	3	1	2		3	-	-	-	-	-	1	-	1
C04	Describe the land grading techniques for proper land management. (Understand-L2)	2	2	2	-	1	-	3	-	-	-	-	-	1	-	1
C05	Discuss the appropriate models for watershed management. (Understand-L2)	2	3	1	2	3	-	3	-	-	-	-	-	1	-	1
	Average value of CO	2.60	2.40	1.60	1.33	1.60	-	2.60	-	-	-	-	-	1.00	-	1.00
23CES5	STRUCTURAL ANALYSIS AND DESIGN LABORATORY USING ETABS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand and apply the fundamentals of structural modeling, load assignment and analysis of RCC buildings using ETABS.	3	3	-	-	3	-	-	-	-	-	-	-	3	-	2
C02	Analyse building structures under dead load, live load, seismic load and wind load conditions using relevant IS Codes and interpret structural behaviour.	3	3	3	-	3	-	-	-	-	-	-	-	3	-	2
C03	Design RCC structural components such as beams, columns, slabs and shear walls based on analysis results	3	-	3	-	3	-	3	-	-	-	-	-	3	-	2



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	for safe and economical construction.															
C04	Prepare structural analysis reports, design documentation and engineering interpretations using ETABS software for practical civil engineering applications.	-	-	-	-	3	-	-	-	2	3	-	-	3	-	2
	Average value of CO	3.00	3.00	3.00	-	3.00	.	3.00	-	2.00	3.00	-	-	3.00	-	2.00
23MC05	CONSTITUTION OF INDIA	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Explain the history, philosophy, and salient features of the Indian Constitution. (L2)	-	-	-	-	-	3	3	3	-	2	-	3	-	-	-
C02	Describe Fundamental Rights, Directive Principles of State Policy, and Fundamental Duties. (L2)	-	-	-	-	-	3	2	3	-	2	-	3	-	-	-
C03	List the powers and functions of the Legislature, Executive, and Judiciary. (L1)	-	-	-	-	-	3	3	3	-	2	-	3	-	-	-
C04	Interpret the structure and functioning of local administration and Panchayat Raj institutions. (L2)	-	-	-	-	-	3	2	3	-	2	-	3	-	-	-
C05	Explain the role of the Election Commission and welfare institutions for SC/ST/OBC and women. (L2)	-	-	-	-	-	3	3	3	-	2	-	3	-	-	-
	Average value of CO	-	-	-	-	-	3.00	2.60	3.00	-	2.00	-	3.00	-	-	-
23PI02	EVALUATION OF INDUSTRY INTERNSHIP	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
C01	Identify engineering processes relevant to the industry	3	3	-	-	-	2	3	-	-	-	-	3	3	3	2
C02	Understand the usage of modern technologies & tools in the field of civil Engineering	3	3	3	3	3	3	3	3	3	-	3	3	3	3	3



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C03	Adapt communication & Presentation skills	-	-	-	-	-	-	-	-	3	3	1	3	-	-	-
C04	Improve the report writing skills	-	-	-	-	-	-	-	3	1	3	1	3	-	-	-
	Average value of CO	3.00	3.00	3.00	3.00	3.00	2.50	3.00	3.00	2.33	3.00	1.67	3.00	3.00	3.00	2.50
VIII SEMESTER (IV BTECH - II SEM)																
23PI03	FULL SEMESTER INTERNSHIP & PROJECT WORK	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the complex engineering problems relevant to the society and industry.	3	3	-	-	-	2	3	-	-	-	-	3	3	3	3
C02	Apply modern technologies, tools and systems in the field of Civil Engineering to analyze the identified problem.	3	3	3	3	3	3	3	3	3	-	3	3	3	3	3
C03	Design and implement a viable solution to the problem.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C04	Apply communication & Presentation skills	-	-	-	-	-	-	-	-	3	3	1	3	-	-	-
C05	Develop the team work and leadership skills with professional and ethical values.	-	-	-	-	-	-	-	3	3	1	2	3	-	-	-
C06	Develop the report writing skills	-	-	-	-	-	-	-	3	1	3	1	3	-	-	2
	Average value of CO	3.00	3.00	3.00	3.00	3.00	2.67	3.00	3.00	2.60	2.50	2.00	3.00	3.00	3.00	2.75

Head of the Department