



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

L.B. Reddy Nagar, Mylavaram-521230. A.P, INDIA

Affiliated to JNTUK, Kakinada & Approved by AICTE New Delhi

NAAC Accredited New Delhi & Certified by ISO 9001:2015

DEPARTMENT OF CIVIL ENGINEERING

<http://www.lbrce.ac.in>, hodcivil@lbrce.ac.in Ph: 08659-222933, Fax: 08659-222931

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (R14) MAPPING WITH POs AND PSOs

I SEMESTER (I BTECH -I SEM)

I SEMESTER (I BTECH -I SEM)																
S239	English - I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Read, write and aptly understand what ever is written and spoken in English	-	2	2	-	-	-	-	3	3	3	-	-	-	-	-
C02	speak fluently with acceptable pronunciation and write using appropriate words, spellings, grammar and syntax	-	2	2	-	-	-	-	3	3	3	-	-	-	-	-
C03	Read the lines, between lines and beyond lines excelling in comprehension skills	-	2	2	-	-	-	-	3	3	3	-	-	-	-	-
C04	Draft Reports, memos, mails & letters as part of their work	-	2	2	-	-	-	-	3	3	3	-	-	-	-	-
C05	Speak grammatically error free English	-	2	2	-	-	-	-	3	3	3	-	-	-	-	-
S132	Applied Mathematics - I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the different First order Differential Equations, Procedures to solve them and their physical applications	3	2	-	2	3	-	-	3	-	-	-	2	-	-	-
C02	Understand the second order and higher order Homogeneous and Non-Homogeneous Differential equations and Procedures to solve them	3	2	-	2	3	-	-	3	-	-	-	2	-	-	-



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C02	Articulate English with good pronunciation.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C03	Face competitive exams like GRE, TOEFL, IELTS etc.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C04	Face interviews and skillfully manage themselves in group discussions	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C05	Communicate with the people effectively.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
L126	Computer Programming Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Plan solution for a problem and writing a program by understanding the various data types and the conditional statements	2	3	-	-	-	-	-	-	-	2	2	-	1	-	-
C02	Plan a solution for a problem and writing a program by understanding repetitive statements i.e., loops and arrays with different dimensions	2	3	-	-	-	-	-	-	-	2	2	-	1	-	-
C03	Plan a solution for a problem and writing a program by understanding how to access the address locations of a variables using pointers and how the problem can be divided into sub functions to reduce the complexity	2	3	-	-	-	-	-	-	-	2	2	-	1	-	-
C04	Plan a solution for a problem and writing a program by understanding the structures and unions and to access the data from files	2	3	-	-	-	-	-	-	-	2	2	-	1	-	-
L140	Engineering Chemistry Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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C01	Assess quality of water based on the procedures given.	3	3	-	-	-	2	2	-	3	-	3	-	-	-	-
C02	Distinguish different types of titrations in volumetric analysis after performing the experiments listed in the syllabus.	3	3	-	-	-	2	2	-	3	-	3	-	-	-	-
C03	Acquire practical knowledge related to preparation of polymers.	3	3	-	-	-	2	2	-	3	-	3	-	-	-	-
C04	Exhibit skills in performing experiments based on theoretical fundamentals.	3	3	-	-	-	2	2	-	3	-	3	-	-	-	-
L124	Computer Aided Engineering Graphics Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the Auto-CAD basics and apply to solve practical problems used in industries where the speed and accuracy can be achieved.	3	-	1	2	-	-	2	-	-	1	-	2	3	2	-
C02	Apply this idea and make design and modifications as required.	3	-	1	2	-	-	2	-	-	1	-	2	3	2	-
C03	Draw 2-dimensional drawings of conventional engineering objects using Auto-CAD	3	-	1	2	-	-	2	-	-	1	-	2	3	2	-
II SEMESTER (I BTECH -II SEM)																
S240	English - II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Use English language effectively in written and spoken English	-	-	-	-	-	-	-	-	3	3	2	-	-	-	-
C02	Express the right ideas in right context .	-	-	-	-	-	-	-	-	3	3	2	-	-	-	-
C03	Manage the situation and negotiate business with good English communication	-	-	-	-	-	-	-	-	3	3	2	-	-	-	-



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C04	Think and analyze the situations and make good presentations of their work and decisions	-	-	-	-	-	-	-	-	-	3	3	2	-	-	-	-
C05	prepare oneself to face interviews and also to participate in group discussions.	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-
S133	Applied Mathematics - II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	
C01	Learn the listening skills	3	3	-	1	-	-	-	-	2	-	-	2	-	-	-	
C02	Learn the right contextual vocabulary	3	3	-	1	-	-	-	-	2	-	-	2	-	-	-	
C03	Learn the right grammar	3	3	-	1	-	-	-	-	2	-	-	2	-	-	-	
C04	Learn the comprehension skills	3	3	-	1	-	-	-	-	2	-	-	2	-	-	-	
C05	Understand the communication in technical point of view	3	3	-	1	-	-	-	-	2	-	-	2	-	-	-	
S238	Engineering Physics	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	
C01	Understand the nature of polarization, Diffraction and interference.	3	3	-	2	-	-	-	-	-	-	-	3	-	-	-	
C02	Understand the dual nature of particle and significance of the wave function .	3	3	-	2	-	-	-	-	-	-	-	3	-	-	-	
C03	Understand the principle of LASER and optical fibers. Types of lasers and optical fibers and their applications	3	3	2	2	2	-	-	-	-	-	-	3	-	-	-	
C04	Understand the different types of magnetic materials and their uses.	3	3	3	2	2	-	-	-	-	-	-	3	-	-	-	
C05	Understand the phenomenon of superconductivity, critical parameters, types of super conductors and their applications	3	3	-	2	1	-	-	-	-	-	-	3	-	-	-	
S150	Building Materials and Construction	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	



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C01	Assess the several properties of stones, bricks, cement and tiles used in construction.	2	-	-	-	3	3	3	2	-	2	-	2	2	1	2
C02	Understand different types of brick and stone masonry in building construction	2	-	-	-	3	3	3	2	-	2	-	2	2	1	2
C03	Gain knowledge on building components.	2	-	-	-	3	3	3	2	-	2	-	2	2	1	2
C04	Know the various finishing's in building construction	2	-	-	-	3	3	3	2	-	2	-	2	2	1	2
C05	Exposed to finishing of buildings	2	-	-	-	3	3	3	2	-	2	-	2	2	1	2
S135	Applied Mechanics	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Simplify the system of forces and moments to equivalent systems and determine the resultant of a system	3	3	-	-	-	3	-	-	-	-	-	1	3	-	1
C02	Construct free body diagrams and develop appropriate equilibrium equations	3	3	-	-	-	3	-	-	-	-	-	1	3	-	1
C03	Locate centroid and determine moment of inertia for composite areas	3	3	-	-	-	3	-	-	-	-	-	1	3	-	1
C04	Analyze systems with friction.	3	3	-	-	-	3	-	-	-	-	-	1	3	-	1
C05	Determine the relations of particles under projectile motion	3	3	-	-	-	3	-	-	-	-	-	1	3	-	1
L142	Engineering Physics Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Estimate the specific rotation of sugar solution	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
C02	Understand the concept of diffraction and also find wavelengths of different spectrum	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-



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C03	Determine the frequency of altering current	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
C04	Differentiate the polychromatic and monochromatic source	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
C05	Acknowledge resonance and formation of stationary waves	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
L115	Building Planning and Computer Aided Drawing	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Draw different components of buildings with appropriate sign conventions	3	-	-	2	-	-	-	-	-	1	2	-	3	1	-
C02	Understand the terminology used in building drawing	3	-	-	2	-	-	-	-	-	1	2	-	3	1	-
L143	Engineering Workshop	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C0 1	Model and Develop various basic prototypes in the carpentry trade	3	3	2	2	-	-	-	-	3	-	-	3	-	-	-
C0 2	Develop various basic prototypes in the trade of Welding	3	3	2	2	-	-	-	-	3	-	-	3	-	-	-
C0 3	Develop various basic prototypes in the trade of Tin smithy	3	3	-	-	-	-	-	-	3	-	-	3	-	-	-
C0 4	Understand various basic House Wiring concepts and implement them in simple electrical connections	3	3	-	-	-	-	-	-	3	-	-	3	-	-	-
L154	IT workshop	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the various components and peripheral devices of a computer	-	-	-	-	1	-	-	-	2	-	-	2	1	-	-
C02	Gain confidence in assembling disassembling of computer and its peripherals	-	-	-	-	3	-	-	-	-	3	-	2	1	-	-
C03	Install different operating systems	-	-	-	-	3	-	-	-	-	3	-	2	1	-	-



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C04	Handle the trouble shooting problems of hardware and software	-	-	-	-	2	-	-	-	-	2	-	-	3	-	-
C05	Use the Internet, MS office and Photoshop packages with ease	-	-	-	-	3	-	-	-	-	2	-	1	2	-	-
III SEMESTER (II BTECH -I SEM)																
S391	Strength of Materials-I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Calculate the stresses and strains in a member subjected to different loadings	2	2	1	-	-	-	-	-	-	-	-	2	3	-	1
C02	Analyze the various beams subjected to different loads using shear force and bending moment diagrams	2	2	1	-	-	-	-	-	-	-	-	2	3	-	1
C03	Analyze the shear and bending stress distribution in several members of different sections	2	2	1	-	-	-	-	-	-	-	-	2	3	-	1
C04	Estimate the deflections of determinate beams under various loads.	2	2	1	-	-	-	-	-	-	-	-	2	3	-	1
C05	Calculate the stresses in thick and thin cylindrical and spherical shells under different loads and directions	2	2	1	-	-	-	-	-	-	-	-	2	3	-	1
S304	Mechanics of Fluids	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand basic principles of fluid properties and pressure measurement	3	3	2	-	-	3	-	-	-	1	-	1	3	1	-
C02	Apply the principles of conservation of mass, momentum and energy to fluid mechanics problems	3	3	2	-	-	3	-	-	-	1	-	1	3	1	-



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C03	Compute the energy losses and determine the energy gradient in pipe flows	3	3	2	-	-	3	-	-	-	1	-	1	3	1	-
C04	Compute the various properties of fluid in closed channels	3	3	2	-	-	3	-	-	-	1	-	1	3	1	-
C05	Understand basics of boundary layer theory	3	1	1	-	-	3	-	-	-	1	-	1	3	1	-
S396	Surveying	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the principles and practices of taking linear measurements.	1	1	2	2		3	2	2	1	2	3	-	1	2	3
C02	Understand the angular measurements using chain and compass.	2	1	2	3	2	2	2	2	1	2	3	-	2	1	3
C03	Plot a given area using plane table in the field	1	1	2	2	3	3	2	2	1	2	3	-	1	3	2
C04	Understand and plot the elevations of different points in the field	3	1	2	3	2	3	2	2	1	2	3	-	2	1	3
C05	Perform the calculations for computing the area and volume of survey works using fundamental principles	1	1	2	2	3	3	2	2	1	2	3	-	1	2	3
S171	Concrete Technology	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the concept of concrete and the component materials	-	1	-	3	1	2	1	-	-	-	-	2	-	-	3
C02	Assess the required properties of concrete.	-	-	-	3	1	2	1	-	-	-	-	2	-	-	3
C03	Know the importance of various tests to determine strength of concrete.	-	-	-	2		2	1	-	-	-	-	2	-	-	3
C04	Understand the various types special concrete	-	-	-	-	1	2	1	-	-	-	-	2	-	3	3



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C05	Compute the mix proportions for design as per IS code	2	-	3	3	1	2	1	-	-	-	-	2	3	-	2
S134	Applied Mathematics - III	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	The methodology of interpolation and extrapolation to common problems using different formulae	3	3	-	-	-	-	-	-	2	-	-	2	-	-	-
C02	The application of Numerical Techniques in Integration, solving the algebraic and transcendental equations	3	3	-	-	-	-	-	-	2	-	-	2	-	-	-
C03	Solving Difeerential equations by using Numerical methods	3	3	-	-	-	-	-	-	2	-	-	2	-	-	-
C04	The concepts of Vector Calculus Vctor Differentiation and Conservative fields	3	3	-	-	-	-	-	-	2	-	-	2	-	-	-
C05	The concepts of line integral,suface and volume integrals, vector integral theorems	3	3	-	-	-	-	-	-	2	-	-	2	-	-	-
S208	Electrical and Electronics Engineering	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyze the different types of electical networks	3	2	1	1	-	-	-	-	-	-	-	-	-	-	-
C02	Understand the working of AC machines and their applications	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
C03	Use the techniques to measure efficiency and regulation of AC machines	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C04	Demonstrate the characteristics of different electronic devices and their applications	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-
C05	Understand the working of electical and electronics measuring instruments	2	-	-	-	2	1	-	-	-	-	-	-	-	-	-
S243	Environmental Studies	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03



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C01	Evaluate local, regional and global environmental issues related to resources and management	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
C02	Understand the implications of the ecosystems and identify the threats to global biodiversity	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
C03	Realize the problems related to pollution of air, water and soil	2	2	3	-	-	3	-	-	-	-	-	2	-	-	-
C04	Investigate and solve social issues of the environment	2	2	3	-	-	-	3	-	-	-	-	2	-	-	-
C05	Create awareness on the concept of sustainable population growth	2	2	3	-	-	3	-	-	-	-	-	2	-	-	-
L179	Survey Field Work Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Obtain linear and angular measurements in the field using chain and compass	3	2	2	3	-	-	-	-	-	-	-	2	3	2	-
C02	Plot a given area using plane table in the field	3	3	2	3	-	-	-	-	-	-	-	2	3	2	-
C03	Determine the elevations of different points in the field	3	3	2	3	-	-	-	-	-	-	-	2	3	2	-
L178	Strength of Materials Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Perform necessary experiments to determine the mechanical properties of materials under different loading conditions	3	3	3	-	-	-	-	-	-	-	-	2	3	-	2
C02	Analyze the experimental results for assessment of the strength of the given material	3	3	3	-	-	-	-	-	-	-	-	2	3	-	2
IV SEMESTER (II BTECH -II SEM)																
S112	Advanced Surveying	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the principles and perform the calculations involved in the usage of theodolite	1	2	3	3	-	2	1	-	1	2	-	1	1	2	1



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C02	Perform the calculations involved in the Tachometry in civil engineering aspects	2	3	2	3	-	1	1	-	1	2	-	1	2	1	1
C03	Perform the necessary calculations involved in using principles of triangulation and trigonometry for its application in civil engineering	2	3	2	3	-	1	1	-	1	2	-	1	1	2	1
C04	Compute the calculations required for setting the curves in civil engineering applications	3	3	2	3	-	1	1	-	1	2	-	2	2	1	1
C05	Understand the basic concepts of GIS and advanced surveying practices	-	1	2	3	-	2	1	-	1	2	-	3	1	2	2
S392	Strength of Materials-II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyse the principal stresses and strains on planes	2	2	3	-	1	1	-	-	-	-	-	2	3	1	1
C02	Compute stress in the case of torsion in springs and shafts.	2	2	3	-	1	1	-	-	-	-	-	2	3	1	1
C03	Determine stress in compression members.	2	2	3	-	1	1	-	-	-	-	-	2	3	1	1
C04	Compute bending stress on columns.	2	2	3	-	1	1	-	-	-	-	-	2	3	1	1
C05	Analyse member forces in trusses.	2	2	3	-	1	1	-	-	-	-	-	2	3	1	1
S264	Hydraulics and Hydraulic Machinery	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Design the most economical sections for open channel flow	3	3	3	-	-	2	1	-	-	1	-	-	3	2	
C02	Estimate formation of hydraulic jump and subsequent energy losses	3	3	3	-	-	2	1	-	-	1	-	-	3	2	
C03	Compute the efficiency of jets and work done for different types of blades.	3	3	3	-	-	2	1	-	-	1	-	-	3	2	



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C04	Identify the suitability of turbines based on fundamental principles for different field applications	2	1	1	-	-	2	1	-	-	1	-	-	2	1	
C05	Identify the suitability of pumps based on fundamental principles for different field applications.	2	1	1	-	-	2	1	-	-	1	-	-	2	1	
S234	Engineering Geology	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Know the geology and the earth strata.	1	1	2	2	2	2	3	1	1	2	-	2	2	2	3
C02	Identify the physical properties of minerals.	2	1	2	3	2	2	1	1	1	2	-	3	2	1	3
C03	Determine the various types of rocks and their properties.	1	1	2	2	3	3	2	1	1	2	-	3	1	3	2
C04	Understand the structural patterns of various geological structures.	3	1	2	3	2	3	2	1	1	2	-	3	2	1	3
C05	Understand the applications of geology in civil engineering.	1	1	2	2	3	3	2	2	2	1	-	3	1	2	3
S295	Managerial Economics and Financial Analysis	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Capable of analyzing fundamentals of economics such as demand, production, price, supply and investment concepts which helps in effective business administration	-	-	-	-	-	-	-	2	3	-	3	-	2	-	2
C02	Choose the right type of business activity, establish the business unit and invest adequate amount of capital in order to get maximum return from select business activity	-	-	-	-	-	-	-	2	2	2	2	-	2	-	2
C03	Prepare and analyse accounting statements like income & expenditure statement, balance sheet apart from the fundamental knowledge, to understand financial	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2



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	performance of the business and to initiate the appropriate decisions to run the business profitably															
C04	Take the effective business decision & analyze the accounting statements	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2
C05	Prepare the Balance sheet and calculate the financial accounts	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2
S393	Structural Analysis-I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyze propped cantilevers, fixed beams	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C02	Analyze continuous beams subjected to different loads	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C03	Perform calculations using slope deflection method for structural analysis	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C04	Apply the concept of strain energy for analyzing different structural components	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C05	Analyze the indeterminate beams	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
S355	Professional Ethics and Human Values	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Acquires the basic concepts of Professional ethics and human values & Students also gain the connotations of ethical theories	-	-	-	-	-	-	-	2	3	-	3	-	2	-	2
C02	Knows the duties and rights towards the society in an engineering profession	-	-	-	-	-	-	-	2	2	2	2	-	2	-	2
C03	Would realize the importance and necessity of intellectual property rights	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2



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C04	Can take all the necessary precautions while conducting the experiments, which may reduce the risk	-	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2
C05	Understands the importance of risk evacuation system in reality and takes the utmost responsibility while handling the risky situations	-	-	-	-	-	-	-	-	2	3	3	3	-	2	-	2
L141	Engineering Geology Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	
C01	Identify the various types of mineral and rocks based on the physical properties and some mere observations	2	2	-	-	-	-	-	-	-	-	-	1	2	3	-	
C02	Draw the structural patterns of various geological structures	-	1	-	-	2	-	-	-	-	1	-	3	3	2	-	
C03	Know the atomic structures minerals through microscopic observations	-	-	2	-	2	-	-	-	-	1	-	1	3	3	-	
C04	Know the different minerals present in a rock through microscopic observations	-	-	2	-	2	-	-	-	-	1	-	1	3	3	-	
L146	Fluid Mechanics and Hydraulics Machine Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	
C01	Develop knowledge on the fundamental principles of fluid flow	3	3	3	1	-	-	1	-	-	1	-	-	3	1	-	
C02	Apply the laws of conservation of mass, energy and momentum to solve practical problems in fluid mechanics	3	3	3	1	-	-	1	-	-	1	-	-	3	1	-	
C03	Practically visualize the functioning and performance of hydraulic turbines and pumps	3	3	3	1	-	-	1	-	-	1	-	-	3	1	-	
V SEMESTER (III BTECH -I SEM)																	



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S394	Structural Analysis - II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyse the three-hinged and two-hinged arches	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C02	Estimate the impact of moving loads on structures	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C03	Draw influence lines for analysis purpose	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C04	Analyse the continuous beams and portal frames	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
C05	Understand the basics of stiffness and flexibility methods for structural loads analysis	3	3	-	2	1	1	3	-	1	1	-	1	3	2	2
S183	Design of Reinforced Concrete Structures - I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Design singly and doubly reinforced RC beams in working stress methods	3	3	2	-	-	1	-	3	-	2	-	3	-	-	-
C02	Design singly and doubly reinforced RC beams in limit state method	3	3	2	-	-	1	-	3	-	2	-	3	-	-	-
C03	Design shear reinforcement for RC beams as per IS: 456-2000	-	3	2	-	-	1	-	3	-	2	-	3	-	-	-
C04	Design of slabs as per IS: 456-2000	3	3	2	-	-	1	-	3	-	2	-	3	-	-	-
C05	Design of columns subjected to axial load, uni-axial and bi-axial moments	3	3	2	-	-	1	-	3	-	2	-	3	-	-	-
S255	Geo Technical Engineering - I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand soil as a building material and load bearing member	3	-	2	2	2	2	3	-	-	2	-	3	-	3	2
C02	Perform different procedures for classifying soils	3	3	3	1	1	2	3	-	-	2	-	3	3	3	2
C03	Asses the influence of soil water relationship	3	3	3	1	1	2	3	-	-	2	-	3	3	3	2



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C04	Analyze engineering behaviour of soils under different load/ drainage conditions	3	3	3	1	1	2	3	-	-	2	-	3	3	3	2
C05	Analyze the influence of field conditions on strength and consolidation properties of soils	3	3	3	1	1	2	3	-	-	2	-	3	3	3	2
S265	Hydrology	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Aware of fundamentals of Irrigation practices	2	2	1	1	-	2	2	-	-	1	-	-	3	1	-
C02	Identify appropriate method of irrigation based on field conditions	2	2	1	1	-	2	2	-	-	1	-	-	3	1	-
C03	Estimate the moisture availability for irrigation and check the suitability of available water for irrigation purposes	2	2	1	1	-	2	2	-	-	1	-	-	3	1	-
C04	Estimate direct run off from total rain fall, and develop the corresponding hydrographs	2	2	1	1	-	2	2	-	-	1	-	-	3	1	-
C05	Estimate the ground water potential based on theoretical principles	2	2	1	1	-	2	2	-	-	1	-	-	3	1	-
S423	Water Supply Engineering	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Estimate the preliminary requirements of water supply	2	1	-	1	1	1	1	-	1	-	1	-	1	1	1
C02	Understand the impact of water quality parameters on receptors	2	1	3	2	2	1	1	-	1	-	1	-	2	2	1
C03	Design different water supply treatment systems by understanding the governing principles	3	2	2	2	1	1	1	-	1	-	1	-	2	2	3
C04	Grasp treatment methods of desalination of water	2	1	1	1	1	1	1	-	1	-	1	-	1	1	1
C05	Analyze and design the water supply distribution systems	1	2	1	1	1	1	1	-	1	-	1	-	2	2	1



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S412	Transportation Engineering - I	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the road network development and Highway planning in India	-	-	-	-	-	2	-	3	-	2	-	-	1	1	-
C02	Design various geometric elements of the roads based on the geographical conditions	-	3	-	-	-	-	-	3	-	2	-	-	2	2	-
C03	Understand the different traffic characteristics and analyze the data	-	3	-	-	-	-	-	3	-	2	-	-	-	1	-
C04	Analyze various highway materials for their suitability for highway construction	-	3	2	-	-	1	-	3	-	-	-	-	-	-	2
C05	Apply different design methods for pavement construction	-	3	2	-	-	1	-	3	-	2	-	-	2	2	-
L113	Advanced Survey Field Work	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Obtain angular measurements in the field using theodolite	3	3	3	3	-	2	-	-	-	1	-	-	3	3	-
C02	Determine the elevations of different points in the field using theodolite and total stations	3	3	3	3	-	2	-	-	-	1	-	-	3	3	-
C03	Able to execute setting out of a few activities in the field	2	2	1	3	-	2	-	-	-	1	-	-	3	3	-
L119	Communication and Presentation Skills Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Make power point presentations and oral presentations	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-
C02	Articulate English with good pronunciation	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-
C03	Face competitive exams like GRE, TOEFL, IELTS etc.	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-
C04	Face interviews and skillfully manage through group discussions	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-
C05	Negotiate skillfully for better placement	-	-	-	-	-	-	-	-	2	3	2	-	-	-	-



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VI SEMESTER (III BTECH -II SEM)

S185	Design of Steel Structures	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the properties of steel and design basics	2	1	1	-	1	-	1	-	-	-	-	1	2	1	1
C02	Design the compression and tension members of steel	3	3	3	3	2	-	1	-	-	-	-	1	3	1	1
C03	Determine the moment calculations in built up columns	3	3	3	3	2	-	1	-	-	-	-	1	3	1	1
C04	Understand the different types of connections in steel constructions	2	3	3	3	2	-	1	-	-	-	-	1	3	1	1
C05	Design the various types of trusses	3	3	3	3	2	-	1	-	-	-	-	1	3	1	1
S420	Waste Water Engineering	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand sources and quantity wastewater generation	2	2	1	1	1	1	1	-	-	1	-	1	2	2	2
C02	Know the importance of wastewater quality characteristics	2	2	2	2	2	1	1	-	-	1	-	1	1	2	2
C03	Design different treatment systems of wastewater engineering	3	3	3	2	1	1	1	-	-	1	-	1	3	3	3
C04	Study the biological filtrations of sewage	2	2	2	1	1	1	1	-	-	1	-	1	1	1	1
C05	Understand the different sewer materials and sanitation aspects of domestic and rural areas	1	1	1	1	1	1	1	-	-	1	-	1	1	1	1
S421	Water Resources Engineering	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand importance of reservoir sedimentation in planning for water resources	2	2	1	1	-	2	1	-	-	1	-	-	3	2	-
C02	Perform stability analysis for gravity and earth dams	3	2	3	1	-	3	1	-	-	1	-	-	3	2	-
C03	Analyze the parameters needed in the design of weirs/barrages in permeable soils	3	2	3	1	-	3	1	-	-	1	-	-	3	2	-



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C04	Design the irrigation canals, canal regulation structures and cross drainage Structures	3	2	3	1	-	3	1	-	-	1	-	-	3	2	-
C05	Design canals using existing theories	3	2	3	1	-	3	1	-	-	1	-	-	3	2	-
S256	Geo Technical Engineering-II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand soil exploration	3	-	-	1	1	1	3	-	-	-	-	3	2	1	2
C02	Understand role of safe bearing capacity in the construction of foundations and determine safe bearing capacity for design of buildings.	3	3	-	1	1	1	3	-	-	-	-	3	3	1	2
C03	Knowledge about soil structure interaction and group capacity of soils.	3	3	-	1	1	1	3	-	-	-	-	3	3	1	2
C04	Determine the earth pressure and Knowledge about design principles of retaining walls.	3	3	3	1	1	1	3	-	-	-	-	3	3	1	2
C05	Get information about special foundations and design principles of caissons.	3	3	-	1	1	1	3	-	-	-	-	3	3	1	2
S413	Transportation Engineering-II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Summarize the rail network development and railway planning in India.	-	-	-	1	-	-	-	-	-	1	-	2	2	1	1
C02	Analyse different technical aspects of railway junctions.	-	1	-	1	-	-	-	-	-	-	-	1	1	1	1
C03	Characterise the concepts of railway Interlocking and signalling systems.	-	-	-	1	-	-	-	-	-	1	-	2	1	1	1
C04	Identify the technical issues related to planning and design of airports	-	-	-	1	-	-	-	-	-	1	-	2	1	1	1
C05	Illustrate the technical components of harbour.	-	-	-	1	-	-	-	-	-	1	-	2	1	1	1



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S435	Matrix Methods of Structural Analysis	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand basics of matrix methods of analysis	1	1	-	-	-	-	-	-	-	-	-	1	3	-	-
C02	Generate element stiffness matrix and flexibility matrix	2	3	2	-	-	-	-	-	-	-	-	1	3	-	-
C03	Generate stiffness matrix for beams and calculate displacements	2	3	2	-	-	-	-	-	-	-	-	1	3	-	-
C04	Generate stiffness matrix for plane trusses and single bay plane frames and calculate displacements	2	3	2	-	-	-	-	-	-	-	-	1	3	-	-
C05	Generate flexibility matrix for analysis of beams and plane frames and solve problems	2	3	2	-	-	-	-	-	-	-	-	1	3	-	-
S392	Repair and Rehabilitation of Structures	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the various types of cracks and maintenance in R.C structures and masonry structures.	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
C02	Identify requirements of serviceability and durability in concrete	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
C03	Understand the various types of repairing materials to regain its strength	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
C04	Identify the damages of the structures by Non-destructive testing	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
C05	Understand the various techniques of rehabilitation of structures	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
L149	Geotechnical Engineering Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify tools, equipment required and familiarity with experimental	2	-	3	-	-	-	-	-	-	-	2	2	3	-	2



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	procedures for determining index and engineering properties of soils															
C02	Perform field tests for soil investigations	2	-	3	-	-	-	-	-	-	-	2	2	3	-	2
C03	Apply field conditions for computing and analyzing the experimental data	2	3	3	-	-	-	-	-	-	-	2	2	3	-	2
C04	Infer the results and compare	2	-	3	-	-	-	-	-	-	-	2	2	3	-	2
L145	Environmental Engineering Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Perform the different laboratory techniques for examining the water and wastewater quality parameters	3	2	2	3	2	1	1	-	1	1	1	-	2	2	2
C02	Analyse the laboratory data with respect to field conditions	2	3	3	2	1	1	1	-	1	1	1	-	1	2	2
VII SEMESTER (IV BTECH -I SEM)																
S244	Estimation and Quantity Surveying	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Estimate the various types of structures	2	1	-	-	3	-	-	-	-	-	-	-	-	3	1
C02	Estimate the quantities of different items in buildings	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-
C03	Compute the overall cost of different projects in buildings, canals and roads	1	-	-	-	3	-	-	2	-	-	-	-	1	2	-
C04	Prepare and write specifications and rate analysis	-	-	1	-	-	-	2	-	-	-	-	-	-	-	1
C05	Perform valuation of the property as per the prevailing regulations	-	1	-	2	-	-	-	-	-	-	-	2	-	-	-
S348	Prestressed Concrete Structures	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand the general mechanical behaviour of prestressed concrete	2	1	1	3	1	1	2	-	-	1	2	2	2	1	-



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C02	Perform analysis and design of prestressed concrete members and connections.	3	3	1	3	3	2	2	-	-	2	2	2	3	2	2
C03	Identify and interpret the appropriate relevant industry design codes.	3	3	1	3	-	2	2	-	-	2	2	2	3	2	2
C04	Become familiar with professional and contemporary issues in the design and fabrication of prestressed concrete members.	3	3	2	2	2	1	2	2	2	2	2	2	3	2	2
C05	Perform an industry relevant design project in team setting	3	3	3	3	2	2	2	2	-	2	2	2	3	2	2
S184	Design of Reinforced Concrete Structures - II	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Design shallow foundations	2	2	3	-	1	1	-	-	-	2	-	2	3	1	1
C02	Design slabs	2	2	3	-	1	1	-	-	-	2	-	2	3	1	1
C03	Design stair cases	2	2	3	-	1	1	-	-	-	2	-	2	3	1	1
C04	Design retaining walls	2	2	3	-	1	1	-	-	-	2	-	2	3	1	1
C05	Design RCC water tanks	2	2	3	-	1	1	-	-	-	2	-	2	3	1	1
S432	Environmental Pollution Control	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Acquainted with the impacts of air pollution on society and environment	1	-	1	-	3	1	1	-	1	2	2	-	1	1	1
C02	Calculate the ground level concentrations of pollutants at any location using available air quality models and be able to design the air pollution control equipment	2	2	1	2	1	1	1	-	1	2	2	1	2	1	1
C03	Apply the appropriate techniques for solid waste management in the society	2	2	1	2	1	1	1	-	1	2	2	1	2	1	1
C04	Acquainted with the impacts of noise pollution on society and	2	2	1	2	1	1	1	-	1	2	2	1	2	1	1



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	apply appropriate measures to reduce noise pollution															
C05	Aware of the impacts of hazardous waste flow in society and apply the principles of CETP, EIA and Environmental Audit to develop the possible solutions to major environmental problems	2	1	1	1	1	1	1	-	1	2	2	1	1	1	1
S172	Construction Management	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Manage any project technically and financially	-	-	-	2	1	3	3	-	3	3	-	1	1	-	2
C02	Control project budget	-	-	-	2	1	3	1	-	-	3	-	1	1	-	2
C03	Plan the project to complete in schedule	-	-	-	2	1	-	1	-	-	3	-	1	1	-	2
C04	Perform detailed network analysis to complete project within schedule	-	3	3	2	1	3	1	-	-	3	-	1	3	3	2
C05	Deal contracts and bidding processes	-	-	-	2	3	-	1	-	-	3	-	1	1	2	2
S369	Remote Sensing and Geographical Information System	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Understand technical aspects and fundamentals of Remote sensing and GIS usage	2	1	-	3	-	2	1	-	-	2	-	-	2	2	-
C02	Understanding different photogrammetric images	2	1	-	3	-	2	1	-	-	2	-	-	2	2	-
C03	Analyze and apply the image and spatial data analysis based on remote sensing and GIS data	2	1	-	3	-	2	1	-	-	2	-	-	2	2	-
C04	Understanding apply the different image processing	2	1	-	3	-	2	1	-	-	2	-	-	2	2	-



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C05	Apply the RS & GIS techniques for solving civil engineering applications	2	1	-	3	-	2	1	-	-	2	-	-	2	2	-
L122	Computer Aided Analysis and Design Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyze and design continuous beam, trusses, frames & Multistorey building	3	2	3	2	3	1	2	-	-	1	2	-	3	3	1
C02	Analyze and design of gusset, lacing and batten	3	3	3	-	3	1	2	-	-	1	2	-	3	3	1
C03	Analyze and design of RCC elements	3	3	3	-	3	1	2	-	-	1	2	-	3	3	1
L151	Highway and Concrete Technology Lab	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Perform different tests on aggregates and bitumen for their suitability in highway construction	3	-	3	-	-	2	-	-	-	-	-	2	2	3	3
C02	Perform different tests on cement and concrete for their suitability in structural construction	3	-	3	-	-	2	-	-	-	-	-	2	2	3	3
C03	Perform the Non-Destructive Technique used in structural testing	3	-	3	-	-	2	-	-	-	-	-	2	2	3	3
VIII SEMESTER (IV BTECH -II SEM)																
S111	Advanced Structural Design	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analyse the forces and design the counter fort retaining wall	2	2	3	-	1	1	-	-	-	-	-	2	3	1	-
C02	Design the bunkers, silos and Chimneys	2	2	3	-	1	1	-	-	-	-	-	2	3	1	-
C03	Acquainted with the design aspects of plate girder	2	2	3	-	1	1	-	-	-	-	-	2	3	1	-
C04	Design the gantry girder	2	2	3	-	1	1	-	-	-	-	-	2	3	1	-



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C05	Design the elevated steel water tanks	2	2	3	-	1	1	-	-	-	-	-	2	3	1	-
S438	Rural Road Technology	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Get acquainted with concepts of planning and alignment of rural roads	-	-	-	1	1	-	1	-	1	-	-	1	1	-	1
C02	Get acquainted with materials required for pavement usage, the design aspects of flexible and rigid pavements for rural roads and various drainage systems	-	-	-	1	1	-	1	-	1	-	-	1	1	-	1
C03	Get acquainted with construction of pavements and the appropriate material specifications	-	-	-	1	-	-	-	-	1	-	-	1	1	-	1
C04	Get acquainted with use of waste material for pavement construction	-	-	-	1	-	-	-	-	1	-	-	1	1	-	1
C05	Get acquainted with the quality control aspects involved in the construction and maintenance of pavements	-	-	-	1	-	-	-	-	1	-	-	1	1	-	1
S338	Pavement Analysis and Design Engineering	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Analysis of stress distribution on various types of pavements under repeated loading.	2	2	1	1	-	-	-	-	-	-	2	-	2	1	1
C02	Design of flexible pavement by theoretical and empirical methods	2	2	1	1	-	-	-	-	-	-	2	-	2	1	1
C03	Design of rigid pavement by IRC method and Westergaard approach.	2	2	1	1	-	-	-	-	-	-	2	-	2	1	1
C04	Evaluate the pavement performance and maintenance as per IRC recommendations.	-	-	-	2	-	2	-	1	-	1	2	-	-	2	1



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C05	Applications of Geo-synthetics in stabilisation of highway pavements.	-	-	-	1	-	-	-	-	-	-	1	-	-	1	1
S433	Green Buildings	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Identify the appropriate materials for constructing a green building	-	1	-	2	1	-	-	-	-	-	2	-	1	-	-
C02	Plan for Energy and Resource Conservation in Green Buildings	-	1	-	2	1	-	-	-	-	-	2	-	1	2	-
C03	Optimally use renewable energy resources	-	1	-	2	1	-	-	-	-	-	2	-	1	2	-
C04	Carefully design the buildings using climatic factors	-	1	2	2	1	-	-	-	-	-	2	-	1	2	-
C05	Plan for effective green building rating system	-	1	-	2	1	-	-	-	-	-	2	-	1	2	-
S151	Building Technology	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Aware of the building bye laws and NBC regulations	-	1	-	-	-	-	-	-	-	-	-	2	1	-	-
C02	Grasp the basic principles of architectural planning in construction practice	-	1	-	2	-	-	-	-	-	-	-	2	1	2	-
C03	Identify suitable materials required for construction of buildings	-	1	-	2	-	-	-	-	-	-	-	2	1	1	-
C04	Familiar to the new concepts of green buildings and smart buildings	-	1	-	2	1	-	-	-	-	-	-	2	1	1	2
C05	Familiar to concepts of low cost and energy efficient housing aspects	-	1	-	2	-	-	-	-	-	-	-	2	1	1	-
S436	Modern Construction Systems and Techniques	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03
C01	Get exposed to different low-cost housing techniques	1	-	-	2	-	1	3	-	-	-	-	1	1	-	1



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C02	Get exposed to the foundation techniques used in low-cost housing	1	-	-	2	-	1	3	-	-	-	-	1	1	-	1
C03	Get exposed to various practices of prestressing systems	1	-	-	2	-	1	3	-	-	-	-	1	1	-	1
C04	Learn about different types of construction equipments	1	-	-	2	-	1	3	-	-	-	-	1	1	-	1
C05	Learn about bridge launching techniques	1	-	-	2	-	1	3	-	-	-	-	1	1	-	1

Head of the Department