BANSAL INSTITUTE OF RESEARCH & TECHNOLOGY, BHOPAL
Kokta Anand Nagar, Bhopal

ESTD. : 2007

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (COs)

Semester: VI

Course Name: Structural Design and Drawing (RCC-I)	**Course Code: CE-601**
Students will be able to:	
CO1:	Understand the principles of reinforced concrete design and apply the Limit State Method for the safe and economical design of structural members.
CO2:	Design reinforced concrete beams and slabs and prepare their structural detailing according to standard design practices.
CO3:	Design reinforced concrete columns and footings by considering strength, stability, and serviceability requirements.
CO4:	Interpret and apply relevant Indian Standard (IS) Codes in the analysis and design of reinforced concrete structures.
CO5:	Prepare and explain the detailing of structural components such as beams, slabs, columns, and footings for practical construction applications.

Course Name: Environmental Engineering I	**Course Code: CE-602**
Students will be able to:	
CO1:	Apply the principles of Environmental Engineering to address water and environmental issues in civil engineering and everyday life.
CO2:	Evaluate different water resources and analyze their availability, demand, quantity, and quality for various uses.
CO3:	Understand the characteristics of water quality and explain the methods used to improve and maintain safe water standards.
CO4:	Explain the processes of water treatment and sewerage systems and their importance in public health and environmental protection.
CO5:	Analyze water quality parameters for domestic, industrial, and agricultural applications to ensure effective water resource management.

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Course Name: Advance pavement design		**Course Code: CE-603 C**
Students will be able to:		
CO1:	Understand the material specifications and design considerations for different types of pavements used in highway engineering.	
CO2:	Analyze the stresses in flexible pavements and apply standard methods for their design.	
CO3:	Evaluate the behavior and stress distribution in rigid pavements and explain their structural functions and performance.	
CO4:	Design rigid pavements by applying appropriate engineering principles and relevant design standards.	
CO5:	Understand pavement strengthening techniques and pavement management systems for the maintenance, rehabilitation, and improved performance of existing roads.	

Course Name: Fluid Mechanics II		**Course Code: CE-604 A**
Students will be able to:		
CO1:	Understand the characteristics of laminar and turbulent boundary layers, including laminar sub-layers and hydraulically smooth and rough boundaries.	
CO2:	Analyze the geometry and hydraulic properties of open channels and apply these concepts to practical water conveyance systems.	
CO3:	Evaluate different types of open channel flow, including gradually and rapidly varied flow, and analyze hydraulic jumps in rectangular channels.	
CO4:	Analyze the forces acting on immersed bodies and explain their applications in hydraulic and civil engineering structures.	
CO5:	Understand the working principles and applications of hydraulic turbines, pumps, and water jets used in hydraulic engineering systems.	

Approved By: -
Head of Department