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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING -DATA SCIENCE

COURSE OUTCOMES (COs)

Semester: V

Course Name: Theory of Computation	**Course Code: CD 501**
Students will be able to:	
CO1:	Explain the basic concepts of switching, finite automata theory, and formal languages.
CO2:	Relate practical, real-world problems to languages, automata, computability, and complexity.
CO3:	Construct abstract models of computing (such as DFA, NFA, and Turing machines) and verify their capabilities for recognizing specific languages.
CO4:	Analyze formal grammars, including their types, simplification, and normal forms (e.g., CNF, GNF).
CO5:	Interpret rigorously formal mathematical methods and proofs to validate the properties of languages, grammars, and automata

Course Name: Machine Learning	**Course Code: CD 502**
Students will be able to:	
CO1:	Understand the core concepts, scope, and limitations of machine learning, including fundamental probability, statistics, and linear algebra.
CO2:	Formulate and apply supervised learning models—such as linear regression, logistic regression, and classification—to real-world datasets.
CO3:	Analyze unsupervised learning techniques, clustering algorithms, and ensemble models to extract meaningful patterns from data
CO4:	Design and train deep learning and neural network architectures using optimization techniques like back propagation and gradient descent.
CO5:	Evaluate machine learning models and hypothesis functions using standard performance metrics, data normalization, and hyper parameter tuning.

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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING -DATA SCIENCE

Course Name : Data Mining & Warehousing	**Course Code: CD503 (A)**
Students will be able to:	
CO1:	Understand the core concepts of data warehousing, OLAP technology, and the Knowledge Discovery in Databases (KDD) process.
CO2:	Perform data preprocessing and data cleaning techniques to prepare clean, structured datasets for analysis.
CO3:	Design and implement multidimensional data models, such as Star and Snowflake schemas, for data warehousing.
CO4:	Apply data mining algorithms (e.g., classification, clustering, and association rules) to solve real-world problems.
CO5:	Evaluate and analyze the performance metrics of various data mining algorithms in business environments

Course Name : Computer Graphics & Visualization	**Course Code: CD504 (A)**
Students will be able to:	
CO1:	Grasp the fundamental concepts, theories, and architecture of computer graphics
CO2:	Develop and apply various shape and line-drawing algorithms (e.g., DDA, Bresenham's)
CO3:	Execute geometric transformations on graphic objects and implement clipping, shading, and color models
CO4:	Comprehend multimedia systems architecture, components, and tools.
CO5:	Perform activities involved in the design, development, and testing of modeling, rendering, shading, and animation

Approved By:-
Head of Department