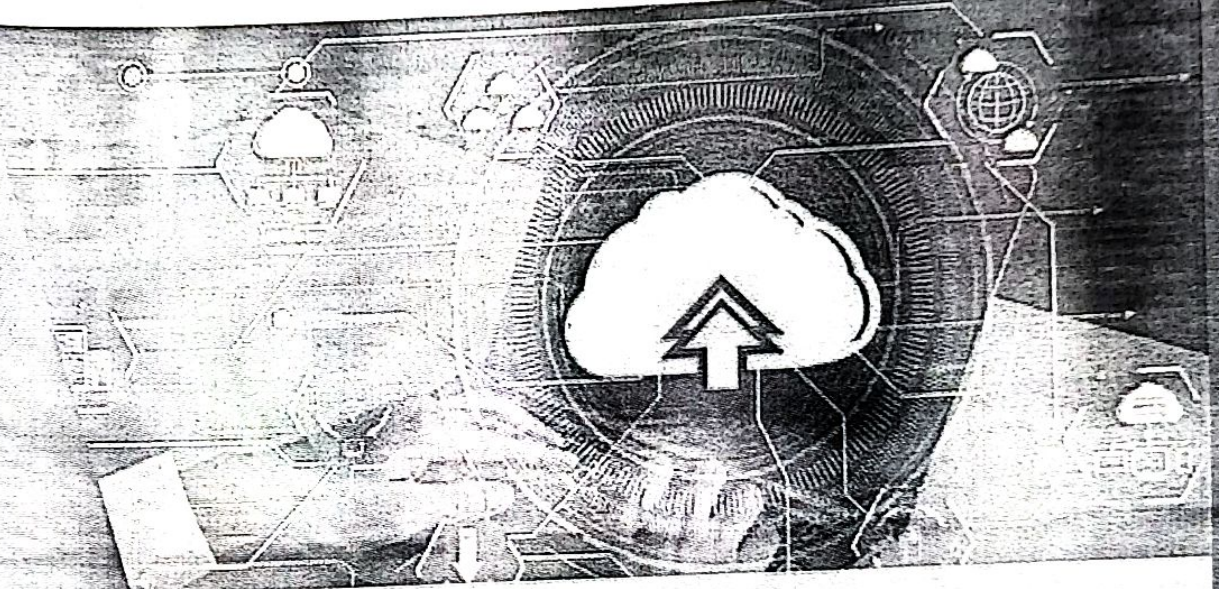


MCAD 201

Master of Computer Application



Mathematical Foundations
for Computer Applications



JAMIA HAMDARD

(Deemed to be University)

SEMESTER - II

CAD 201- Mathematical Foundations for Computer Applications

UNIT 1

Probability Functions and Distributions

Probability mass, density, and cumulative distribution functions, Parametric families of distributions, Expected value, variance, conditional expectation, Applications of the univariate and multivariate Central Limit Theorem, Probabilistic Inequalities, Markov chains.

UNIT 2

Random Sample Distribution

Random samples, sampling distributions of estimators, Methods of Moments and Maximum Likelihood.

UNIT 3

Statistical Models

Statistical inference, Introduction to multivariate statistical models: regression and classification problems, Principal components analysis, The problem of overfitting model assessment.

UNIT 4

Graph Theory

Graph Theory: Isomorphism, Planar graphs, graph colouring, hamilton circuits and euler cycles, Permutations and Combinations with and without repetition. Specialized techniques to solve combinatorial enumeration Problems

UNIT 5

Computer Science & Engineering Applications

Computer science and engineering applications: Data mining, Network protocols, analysis of Web traffic, Computer security, Software engineering, Computer architecture, operating systems, distributed systems, Bioinformatics, Machine learning.