DEPARTMENT OF COMPUTER APPLICATIONS
PHD ENTRANCE EXAMINATION SYLLABUS

COMPUTER APPLICATIONS

Data Mining
Introduction, Definition, KDD vs. DM, DBMS vs. DM, DM techniques, Issues and challenges in DM, DM applications, Classification Techniques- Bayesian classification, two-class and generalized class classification, Classification error, Decision boundary, Discriminant functions, Non-parametric methods for classification. Clustering analysis- Types of data in cluster analysis, Partitioning algorithms, Hierarchical, Density based, Grid based, Model based algorithms, High dimensional & Categorical data clustering.

Geographical Information Systems and Global Positioning System

Definition and scope of GIS; GIS components, applications of GIS, GIS Data base, Geographic data: Spatial and non-spatial, Data input: Digitization of maps and imageries, 3D models: TIN, DEM, DTM Query in GIS; Global Positioning System, Introduction to Global Positioning System; GPS satellites constellations; GPS segments: Space, Control, User; GPS antennas, signals and codes; GPS receivers; Modes of measurements and post processing of data; Accuracy of GPS measurements; Application of GPS.

Video Processing and Multimedia
Video processing basics, video signal, still image, multimedia technology, MPEG, video frame

Digital Image Processing
Introduction on Digital Image processing, Fundamental steps on DIP, Gradient Operator, Basic relationships between neighbouring pixels, Image Enhancement, Fundamentals on Morphological operation, Image Compression