

MT-518	Computational Methods for Data Mining
	<p><u>Computational Methods:</u> Computational methods in supervised and unsupervised learning, Knowledge discovery process, Numerical data mining, Neural networks, Memory based reasoning, Association rules, Visual data mining, Visualizing large numbers of cases and variables.</p> <p><u>Data Mining Functionalities:</u> Concept and class description, Characterization and discrimination, Mining frequent patterns, Associations and correlations, Outlier analysis, Evolution analysis.</p> <p><u>Data Pre-processing:</u> Descriptive data summarization, Measuring the central tendency, Measuring the dispersion of data, Graphic displays of basic descriptive data summaries, Data cleaning, Data integration and transformation, Data reduction, Data discretisation and concept hierarchy generation.</p> <p><u>Classification and Prediction:</u> Issues regarding classification and prediction, Preparing the data for classification and prediction, Classification by decision tree induction, Bayesian classification, Rule-based classification.</p> <p><u>Cluster Analysis:</u> Types of data in cluster analysis, Categorisation of major clustering methods, Partitioning methods, Hierarchical methods, Density-based methods, Model-based clustering methods.</p> <p><u>Reference Books:</u></p> <ul style="list-style-type: none">• Abraham K and Bunke M, <i>Data Mining and Computational Intelligence</i>, Springer, 2001.• Han J and Kamber M, <i>Data Mining: Concepts and Techniques</i>, Morgan Kaufmann Publishers, 2006.• Tan P, Steinbach M and Kumar V, <i>Introduction to Data Mining</i>, Pearson, 2007.• Dunham M.H, <i>Data Mining: Introductory and Advanced Topics</i>, Springer, 2005.