AIT 505 **ADVANCED DATA MINING TECHNIQUES** **3(2+1)**

Objective:
To understand advanced concepts and technologies of mining association rules, cluster analysis, stream data mining, time series data mining, sequence pattern mining, text mining and web mining.

Theory:
UNIT I
Data Mining Architecture, Frequent pattern analysis, Apriori algorithm, FP tree algorithm, association rule generation, Data Mining Query Language, multi-dimensional data representation.

UNIT II
Cluster analysis, types of data in cluster analysis, Categorization of Clustering Methods, partitioning methods, hierarchical methods, density based method and grid base method of clustering.

UNIT III
Data stream mining, Time series data mining, mining sequence patterns in transactional databases, mining sequence pattern in biological data.

UNIT IV
Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial data mining, text mining, Web Mining.

UNIT V
Data mining Applications, Data mining system products and research prototype, additional theme in data mining, social impacts of data mining, trends in data mining.

Practical:
1. To determine frequent item set and association rules using the data mining toolkit.
2. Performing clustering algorithm using the data mining toolkit.
3. Performing time series data mining and analysis using data mining toolkit.
4. Performing the stream mining using data mining toolkit.
5. Performing the text mining using data mining toolkit.

 Data mining tools and packages: Weka, R for Mining, SPSS, SAS and MATLAB

Reference book:
1. Han, J., Kamber, M.: Data Mining: Concepts and Techniques. Second Edition. Elsevier Inc., 2006, 770p., ISBN 1-55860-901-3.
2. Dunham, M.H.: Data Mining. Introductory and Advanced Topics. Pearson Education, Inc., 2003, 315 p.,ISBN 0-13088-892-3