<table>
<tr><th>Course Code</th><th colspan="8">Course Title</th></tr>
<tr><td>116h54C601</td><td colspan="8">Advanced Data mining</td></tr>
<tr><td></td><td colspan="3">TH</td><td colspan="2">P</td><td colspan="2">TUT</td><td>Total</td></tr>
<tr><td>Teaching Scheme(Hrs.)</td><td colspan="3">03</td><td colspan="2">--</td><td colspan="2">--</td><td>03</td></tr>
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<tr><td colspan="2">CA</td><td rowspan="2">ESE</td><td rowspan="2">TW</td><td rowspan="2">O</td><td rowspan="2">P</td><td rowspan="2">P&O</td><td rowspan="2">Total</td></tr>
<tr><td>ISE</td><td>IA</td></tr>
<tr><td>30</td><td>20</td><td>50</td><td>--</td><td>--</td><td>--</td><td>--</td><td>100</td></tr>
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Course prerequisites: Data mining

Course Objectives:

1. To analyze various algorithms and techniques to mine complex data beyond conventional record data to mining complex structure and complex data
2. Extract useful knowledge from massive data sources using distributed computing solutions for data intensive applications
3. To develop the basic skills necessary to pursue research in data mining.

Course Outcomes

On completion of the course students will be expected to

1. Describe the fundamental issues and challenges of mining complex data
2. Analyze patterns in streaming data
3. Derive patterns from complex structures and sequence data
4. Understand the concepts of information retrieval and web search
5. Analyze patterns in multivariate time series data

Module No.	Unit No.	Details	Hrs.	CO
Advanced Data Mining				
1		**Data mining Introduction**	03	CO1
		Data mining process, different types of data representation, different types of knowledge mined, common data mining tasks, Distributed computing solution for data mining and applications		
2		**Incremental Datamining and Stream mining**	06	CO2
		Incremental algorithms for mining frequent patterns Characteristics of Streaming Data, Issues and Challenges, Streaming Data Mining Algorithms		
3		**Mining complex structures**	10	CO3
		Mining trees- Tree Model Guided Framework, TMG framework for mining ordered & unordered subtrees, Tree Mining Applications, Mining maximal and closed frequent trees, Tree mining application Mining Graphs- Approaches to graph mining. Mining social-network graph		
4		**Text mining & Web Search**	08	CO4
		Text Classification, Vector Space Model, Flat and Hierarchical Clustering Web search: Crawling & Indexing, Hyperlink Analysis, Page Rank algorithm, Web Search and Information Retrieval, Application: Query Recommender System		
5		**Sequence mining & Multivariate and Time series mining**	08	CO5
		Sequence Mining- Characteristics of Sequence Data, Problem Modeling, Sequential Pattern Discovery , Timing Constraints Applications in Bioinformatics Multivariate and Time series mining- Importance of Multivariate and Time series data, Sources of MVTS data, Mining MVTS data: Sign Language Data, Agro-meteorological Data		

Recommended Books:

Sr. No.	Name/s of Author/s	Title of Book	Name of Publisher with country	Edition and Year of Publication
1.	Hadzic F., Tan H. & Dillon T. S	Mining data with Complex Structures	Springer	2011
2.	Yates R. B. and Neto B. R	Modern Information Retrieval	Pearson Education	2005
3.	Han J. & Kamber M	Data Mining: Concepts and Techniques	Morgan Kaufmann Publishers	Third edition, 2011
4.	Christopher D.M., Prabhakar R. & Hinrich S	Introduction to Information Retrieval"	Cambridge UP	Online edition, 2009
5.	Tan P. N., Steinbach M & Kumar V	Introduction to Data Mining	Pearson Education	2006