

**SUBJECT DESCRIPTION FORM**

<b>Subject Code</b>	ISE5606
<b>Subject Title</b>	Business Intelligence and Data Mining
<b>Credit Value</b>	3
<b>Level</b>	5
<b>Pre-requisite/Co-requisite/Exclusion</b>	Students must have basic mathematical skills.
<b>Objectives</b>	<p>This subject enables students to</p> <ol style="list-style-type: none"> <li>1. master the basics in business intelligence (BI), data mining (DM), and knowledge discovery in databases;</li> <li>2. learn the role that software tools/applications play in BI and DM, with emphasis on industrial case studies and practical applications;</li> <li>3. Have an overall understanding of the major issues and applications in business intelligence and data mining, including a basic grasp of the algorithm classes and best practices for building successful BI projects.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to</p> <ol style="list-style-type: none"> <li>a. examine the concepts of data warehousing and OLAP;</li> <li>b. apply the concepts of BI and DM techniques for clustering, association, and classification;</li> <li>c. understand the operation procedures of BI projects in an organization;</li> <li>d. select appropriate DM tools and methods to manipulate and achieve data;</li> <li>e. apply DM concepts for formulating business strategies and programs to enhance business intelligence.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p>The syllabi of this subject are:</p> <ol style="list-style-type: none"> <li>1. <u>Business Intelligence (BI)</u>  Introduction to BI, BI concepts, and methods; Nature and representation of data; Building data warehouses; Data marts; OLAP; Concepts in data analysis, reporting, and analytics; Defining BI objectives; Maintenance of data infrastructure; Successful design methodology; Measuring and refining success.</li> <li>2. <u>Data Mining and Knowledge Discovery in Databases (DM and KDD)</u>  Introduction to data mining; Data mining algorithms; Predictive methods; Descriptive methods; Scalability considerations; Integration with DBMS and data warehouses; Lifecycle of data mining; Embedding data mining in</li> </ol>

	<p>business solutions; Example applications; Challenges and special considerations.</p> <p>3. <u>Case Studies</u></p> <p>Case studies drawn from commercial, industrial, and research applications. These include eBusiness applications, cross-sell and up-sell methods; Fraud detection; Market prediction and forecasting.</p> <p>In this subject, the techniques and methods covered are applied to both intra-organizational data and market data (e.g., industry statistics, trends, and competitive information). Enterprise as well as market-oriented applications are covered.</p>																																												
<p><b>Teaching/Learning Methodology</b></p>	<p>Learning is facilitated through face to face lecturing and guided learning. Face-to-face seminars/labs are available to facilitate students' learning. The integrated application-oriented mini-project is designed to help students acquire the knowledge of understanding and using different BI and DM principles, techniques, and tools to solve a real problem through team work.</p> <table border="1" data-bbox="507 842 1453 1285"> <thead> <tr> <th rowspan="2">Teaching/Learning Methodologies</th> <th colspan="5">Intended subject learning outcomes to be assessed</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> </tr> </thead> <tbody> <tr> <td>Lecture</td> <td>√</td> <td>√</td> <td></td> <td>√</td> <td>√</td> </tr> <tr> <td>Tutorial/Labs</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Projects</td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>Case Studies</td> <td>√</td> <td></td> <td>√</td> <td></td> <td></td> </tr> </tbody> </table>					Teaching/Learning Methodologies	Intended subject learning outcomes to be assessed					a	b	c	d	e	Lecture	√	√		√	√	Tutorial/Labs		√				Projects			√	√	√	Case Studies	√		√							
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<p><b>Student Study Effort Expected</b></p>	<p>Class contact:</p>																																												
	<p>Lectures/ seminars/ labs</p>				<p>24 hrs</p>																																								
	<p>Presentation/ test/case studies/project discussion</p>				<p>15 hrs</p>																																								

<b>(Block Mode/ Evening Mode)</b>	Other student study effort:	
	▪ Study of materials for exercises/assignments	28 Hrs.
	▪ Preparation and revision for in class test	28 Hrs.
	▪ Project and presentation preparation	28 Hrs.
	Total student study effort	123 hrs
<b>Reading List and References</b>	<ol style="list-style-type: none"> <li>1. Jiawei Han, Micheline Kamber and Jian Pei, 2012, <i>Data Mining: Concepts and Techniques</i>, 3rd Edition, Morgan Kaufmann</li> <li>2. Jerzy Surma, 2011, <i>Business Intelligence: Making Decisions through Data Analytics</i>, New York, N.Y., Business Expert Press</li> <li>3. Pang-Ning Tan, 2006, <i>Introduction to Data Mining</i>, Boston : Pearson Addison Wesley</li> </ol>	