

**NIRMA UNIVERSITY**  
**Institute of Management**  
**Master of Business Administration (Full Time) Programme/**  
**Integrated Bachelor of Business Administration-Master of Business**  
**Administration Programme/**  
**Master of Business Administration (Family Business &**  
**Entrepreneurship) Programme**

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<b>Course Code</b>	<b>MFT5SEOQ01 MBM5SEOQ01 MFB5SEOQ01</b>
<b>Course Title</b>	<b>Data Analytics and Data Mining</b>

**Course Learning Outcomes (CLO):**

At the end of the course, students will be able to:

1. Identify the basic concepts and the importance of data mining tools and techniques.
2. Apply, analyze and implement some of the widely used tools and techniques in data mining.
3. Develop data analysis and modelling through SPSS/MINITAB/R.

**Syllabus**

**Teaching Hours**

<b>Unit I: Introduction and Overview of the Data Mining Process</b> <ul style="list-style-type: none"> <li>• Introduction and overview of data mining process, analysis and methodologies</li> <li>• Data preparation and data visualization</li> <li>• Dimension reduction methods</li> </ul>	06
<b>Unit II: Predictive Modelling</b> <ul style="list-style-type: none"> <li>• Simple Linear Regression.</li> <li>• Multiple Linear Regression and model building.</li> <li>• Logistic Regression and diagnostics</li> <li>• Handling of Missing data</li> </ul>	10
<b>Unit III: Classification Algorithms and Ensemble Methods</b> <ul style="list-style-type: none"> <li>• Discriminant Analysis</li> <li>• knn classification</li> <li>• Logistic regression for classification</li> <li>• Decision trees</li> <li>• Ensemble methods: Bagging and Boosting</li> <li>• Naïve Bayes</li> <li>• Model Evaluation Techniques</li> </ul>	08
<b>Unit IV: Clustering and Association Rules</b> <ul style="list-style-type: none"> <li>• Hierarchical and k-means clustering</li> <li>• Measuring cluster goodness</li> <li>• Market Basket Analysis, A priori property and association rules, measure of usefulness of association rules</li> </ul>	06

**Suggested Readings:**

1. Larose, D.T. and Larose, C. D., Data Mining and Predictive Analytics, Wiley.
2. Larose, D.T. and Larose, C. D., Discovering Knowledge in Data: An Introduction to Data Mining, Wiley
3. Shumeli, G., Bruce, P.C., Yahav, I., Patel, N.R. and Lichtendahl, K.C. Jr., Data Mining for Business Analytics, Wiley.
4. Giudici, P., Applied Data Mining-Statistical Methods for Business and Industry, Wiley.
5. Ledolter, J., Data Mining and Business Analytics with R, Wiley.
6. Kumar, D. U., Business Analytics-The Science of Data-Driven Decision Making, Wiley.
7. Kabacoff, R. I., R in Action: Data Analysis and Graphics with R, Dreamtech Press.
8. Crawley, M. J., The R-Book, Wiley.

w.e.f Academic Year 2019-20 and onwards