Data Mining for Business

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| **Course Type** | **Course Code** | **Name of Course** | **L** | **T** | **P** | **Credit** |
| DC | MSC522 | Data Mining for Business | 4 | 0 | 0 | 12 |

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| **Course Objective** |
| This course will provide students the opportunity to learn data mining techniques for both structured and unstructured data and its importance in business. Also, they will learn how to implement these techniques in various business problems |
| **Learning Outcomes** |
| **S**tudents will be able to comprehend on the concepts of various data mining techniques and will be able to pick and use specific techniques for different business problems considering the data type |

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| **Unit No.** | **Topics to be Covered** | **Lecture Hours** | **Learning Outcome** |
| 1 | Overview of Business Analytics and Big data; Brief Introduction to Data Warehouse and OLAP Technology Concepts; Introduction to Data Mining Concepts, Terminologies and Processes, supervised, semi-supervised and unsupervised data | 7 | Students will get an overview of Business Analytics domain with the emphasis on Industry practices in Business Analytics. Student will learn what are various types of supervised, semi-supervised and unsupervised data types and the Data mining techniques that can be used to model the data |
| 2 | Data pre-processing: Collection, Integration, Cleaning, Summarization, Transformation, Pattern discovery, Handling Missing values and Outliers; Dimension Reduction: Curse of Dimensionality; Dimension Reduction using Principle Component Analysis; Feature Engineering; Imbalanced data handling techniques | 10 | In this section, students will get hold on how to prepare the data for modeling and also how to perform advanced data operations in order to prepare the modeling data for any Machine learning model |
| 3 | Predictive Performance and Classifier Performance;  Model Calibration: Concept, Need, How and When to Calibrate the model | 10 | Students will learn the process and methodologies for validating data mining models |
| 4 | Predictive and Classification Methods; Clustering and Association Mining Techniques | 15 | Students will learn and practice the business applications of prediction methods, classification methods, clustering and association rule mining |
| 5 | Automating Data Mining Solutions; Model Monitoring: Concept, Mechanism;  Introduction to Text mining and Natural language processing concepts, Applications | 10 | Students will learn the concepts of text mining along with model deployment processes. They will also learn measuring post deployment performance of Data mining models |

**Text Books:**

Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python, by Galit Shmueli, Peter C Bruce, Peter Gedeck, Nitin R Patel, (2020), Wiley

**Reference Books:**

Data Analytics Using Python (Bharti Motwani), Wiley

Python for Everybody: Exploring data using Python 3 (Charles R. Severance) – Free E-book