DS701PC: PREDICTIVE ANALYTICS

B.Tech. IV Year I Sem.

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Prerequisite:

1. Data Science/Data analytics

Course Objectives:

- To learn the basics and applications of predictive analytics using different techniques

Course Outcomes:

- Understand the processing steps for predictive analytics
- Construct and deploy prediction models with integrity
- Explore various techniques (machine learning/data mining, ensemble) for predictive analytics.
- Apply predictive analytics to real world examples.

UNIT - I

Introduction – types of analytics, applications of predictive analytics, overview of predictive analytics. Setting up the problem - processing steps, business understanding, objectives, data for predictive modeling, columns as measures, target variables, measures of success for predictive models.

UNIT - II

Prediction effect, deployment of prediction model, ethics and responsibilities The Data effect

UNIT - III

Machine Learning for prediction

Predictive modeling – decision trees, logistic regression, neural network, kNN, Bayesian method,

Regression model

Assessing Predictive models - Batch Approach to Model Assessment, Percent Correct Classification, Rank-Ordered Approach to Model Assessment, Assessing Regression Models

UNIT - IV

Ensemble effect

Model ensembles – motivation, wisdom of crowds, Bagging, Boosting, Random forests, stochastic gradient boosting, heterogeneous ensembles.

UNIT - V

Case studies: Survey analysis, question answering– challenges in text mining, persuasion by the numbers

TEXT BOOKS:

1. Eric Siegel, Predictive analytics- the power to predict who will Click, buy, lie, or die, John Wiley & Sons, 2013.
2. Dean Abbott, Applied Predictive Analytics - Principles and Techniques for the Professional Data Analyst, 2014.

REFERENCE BOOKS:

1. Trevor Hastie, Robert Tibshirani, Jerome Friedman, The Elements of Statistical Learning-Data Mining, Inference, and Prediction, Second Edition, Springer Verlag, 2009.
2. G. James, D. Witten, T. Hastie, R. Tibshirani-An introduction to statistical learning with applications in R, Springer, 2013.
3. E. Alpaydin, Introduction to Machine Learning, Prentice Hall of India, 2010.