# NEHRU MEMORIAL COLLEGE (AUTONOMOUS)

**NATIONALLY ACCREDITED WITH "A" GRADE BY NAAC**

**PUTHANAMPATTI,TRICHY – 621007**


## DEPARTMENT OF DATA SCIENCE

## PG

## COURSE OUTCOME (COS)

| Name of the Course | Course Outcomes |
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| **Mathematics for Data Science** | CO 1: Understand different mathematical concepts of data science with applications.<br>CO 2: After the course the students will have a strong background of basic mathematics which has diverse applications in many area of data science, data analytics, etc.,<br>CO 3: Master regular languages and finite automata.<br>CO 4: Master context free languages and calculus needed for language processing.<br>CO 5: Familiar with thinking analytically and intuitively for problem analysis in related areas of theory in data science. |
| **Advanced Data Base Systems** | CO 1: Understand the fundamentals of database system.<br>CO 2: Design and create tables in database and execute queries.<br>CO 3: Design a database based on a data models using normalization.<br>CO 4: Have knowledge about transaction concept. |
| **Data Mining Techniques** | CO 1: Preprocess the data using various preprocessing techniques<br>CO 2: Generate association rules using Apriori and FP-growth algorithms |

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| | CO 3: Predict the class label of a given tuple using the classification techniques<br>CO 4: Group the data using the basic clustering techniques<br>CO5: Summarize the concepts of warehouse, its architecture and multidimensional data models. |
| **Information Security** | CO 1: Discuss the basics of information security<br>CO 2: Illustrate the legal, ethical and professional issues in information security<br>CO 3: Demonstrate the aspects of risk management.<br>CO 4: Become aware of various standards in the Information Security System<br>CO 5: Design and implementation of Security Techniques. |
| **Data Base Systems & Data Mining Lab** | CO 1: Understand the fundamentals of database system.<br>CO 2: Design and manipulate tables in database and execute queries.<br>CO 3: Design a database based on a data models using normalization.<br>CO 4: Have knowledge about transaction concepts.<br>CO 5: Impart basic knowledge in advance database systems |

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| **Probability and Statistical Computing** | CO 1: A good understanding of elementary probability theory and its application.<br>CO 2: A good understanding of the laws of probability and the use of Bayes theorem.<br>CO 3: A good understanding of the concept of a statistical distribution.<br>CO 4: A good understanding of the standard uni-variate distributions & their properties<br>CO 5: A good understanding of the basic concepts of statistical inference. |
| **Artificial Intelligence & Machine Learning** | CO 1: Identify learning problems, various concept learning methods<br>CO 2: Identify the representation of neural networks<br>CO 3: Enable to apply various machine learning techniques<br>CO 4: Identify various advanced learning methods |
| **Machine Learning Lab** | CO 1: Familiar with the algorithms of machine learning methods<br>CO 2: Gain Knowledge with techniques used for Knowledge Discovery in Databases<br>CO 3: Analysis machine learning techniques in real world domain |

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| **Multivariate Techniques** | CO 1: Will appreciate the range of multivariate techniques available,<br>CO 2: Will be able to summarize and interpret multivariate data.<br>CO 3: Will have an understanding of the link between multivariate techniques and corresponding univariate techniques, |
| **Big Data Analytics** | CO 1: Analyze evolution and concepts of big data<br>CO 2: Predict mining data from data sets<br>CO 3: Outline Hadoop and Map reduce functions and its environment<br>CO 4: Explain different working principles of Map reduce<br>CO 5: Formulate Hadoop cluster and select appropriate tool |
| **Big Data Analytics Lab** | CO1: Ability how to Install Hadoop Ecosystem<br>CO2: Compare strength and limitations of Pig and Hive<br>CO3: To grouping and sorting using Pig programming language<br>CO4: Annalise evolution and concepts of big data<br>CO5: Predict mining data from data sets |
| **Deep Learning** | CO 1: Technical knowhow of AI applications, heuristics, Expert Systems, NLP, and Machine Learning techniques<br>CO 2: Acquaintance with programming languages such as LISP and PROLOG. |

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| | CO 3: Develop algorithms simulating human brain.<br>CO 4: Implement Neural Networks in Tensor Flow for solving problems.<br>CO 5: Explore the essentials of Deep Learning and Deep Network architectures. |
| **Predictive Analytics** | CO 1: Be able to apply the knowledge of computing tools and techniques in the field of Big Data for solving real world problems encountered in the Software Industries.<br>CO 2: Be able to analyze the various technologies & tools associated with Big Data<br>CO 3: Be able to identify the challenges in Big Data with respect to IT Industry and pursue quality research in this field with social relevance. |
| **Predictive Analytics Lab** | CO 1: Be able to identify the challenges in Big Data with respect to IT Industry and pursue quality research in this field with social relevance.<br>CO 2: Predict mining data from data sets. |
| **Python Programming** | CO 1: To develop proficiency in creating based applications using the Python Programming Language.<br>CO 2: To be able to understand the various data structures available in Python programming language and apply them in solving computational problems.<br>CO 3: To be able to do testing and debugging of code written in Python. |

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| | CO 4: To be able to draw various kinds of plots using PyLab.<br>CO 5: To be able to do text filtering with regular expressions in Python. |
| **R Programming** | CO 1: Familiar with the algorithms of machine learning methods.<br>CO 2: Gain Knowledge with techniques used for Knowledge Discovery in Databases.<br>CO 3: Analysis machine learning techniques in real world domain. |
| **Health Care Data Analytics** | CO 1: Analyse health care data using appropriate analytical techniques.<br>CO 2: Apply analytics for decision making in healthcare services.<br>CO 3: Apply data mining to integrate health data from multiple sources and develop efficient clinical decision support systems. |
| **Social Media Mining** | CO1: Work on the internal components of the social network.<br>CO 2: Model and visualize the social network.<br>CO 3: Mine the behavior of the users in the social network.<br>CO 4: Predict the possible next outcome of the social network.<br>CO 5: Mine the opinion of the user. |
| **Natural** | CO 1: Upon completion of the course, the student should be able to:<br>CO 2: Analyze the natural language text. |

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| **Language Processing** | CO 3: Generate the natural language.<br>CO 4: Do machine translation.<br>CO 5: Apply information retrieval technique. |
| **Financial Risk Analytics** | CO 1: Identify and categorize the various risks faced by an organization.<br>CO 2: Explore the tools and practices needed to assess and evaluate financial risks.<br>CO 3: Explore risk management practices in an industry.<br>CO 4: Identify and solve legal issues that impact financial and other risk affecting business |
| **Cloud and Web Intelligence** | CO 1: Articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing<br>CO 2: Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.<br>CO 3: Explain the core issues of cloud computing such as security, privacy, and interoperability.<br>CO 4: Know the concepts and terminologies related to web analytics.<br>CO 5: Explore various parameters used for web analytics and their impact. |

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| **Customer Relationship Management** | CO 1: Explore the concepts of customer relationship management with industry case studies.<br>CO 2: Develop metrics for customer retention.<br>CO 3: Apply data mining concepts to implement CRM in real world applications.<br>CO 4: Devise strategies to implement CRM in any organization. |
| **Business Intelligence** | CO 1: Explain the fundamentals of business intelligence.<br>CO 2: Link data mining with business intelligence.<br>CO 3: Apply various modeling techniques<br>CO 4: Explain the data analysis and knowledge delivery stages.<br>CO 5: Apply business intelligence methods to various situations. |
| **Image and Video Analytics** | CO 1: Describe the fundamental principles of image and video analysis and have an idea of their application.<br>CO 2: Apply image and video analysis in real world problems. |
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