DEPARTMENT OF INFORMATION TECHNOLOGY :: VRSEC

M.TECH-19 REGULATIONS COURSE OUTCOMES

Course Code	Course Name	CO	Course outcomes
19ITDS1001	Mathematical Foundations for Data Science		
		CO1	Analyze the need and importance of Calculus to a data scientist Understand basic mathematical concepts like calculus and linear algebra .
		CO2	Derive the probability mass and density functions of transformation of random variables
		CO3	Apply the mathematical and probabilistic foundations of statistical inference in computing
		CO4	Interpret the results of Regression and Correlation Analysis, for forecasting , perform analysis of variance
19ITDS1002	Machine Learning		
		CO1	Recognize the characteristics of machine learning, binary classification
		CO2	Solve classification problems using concept learning and multiclass classification
		CO3	Apply Tree based and Linear learning models to real world problems
		CO4	Analyze Bayesian classifiers, Distance based classification and clustering algorithms

19ITDS1003	Advanced Algorithms		
		CO1	Analyze the Performance of algorithms using Time and Space complexities
		CO2	Analyze operations on various types of tree data structures
		CO3	Understand graph data structure and its operations
		CO4	Identify data structures suitable to solve novel problems.
19ITDS1014A	Cloud Computing And Virtualization		
		CO1	Understand the basics of cloud computing and its services
		CO2	Analyze the cloud architecture and the technologies driving virtualization
		CO3	Explore the functioning of different cloud platforms and their applications
		CO4	Identify the need of security in cloud and its mechanisms to manage the cloud environment
19ITDS2014 B	R For Data Science		
		CO1	Understand the semantics, data handling and control statements in R.
		CO2	Analyze the libraries for data manipulation and conduct hypothesis tests for statistical inference.
		CO3	Synthesize data to fit linear and nonlinear models.
		CO4	Implement clustering, optimization and data visualization using R.

19ITDS1015A	Social And Information Network Analysis		
		CO1	Understand the basic notation and terminology used in social network
		CO2	Analyze the structure and balance of the social network
		CO3	Derive the similarities of people in the society and find the communities in the society.
		CO4	Apply link analysis and web search techniques for a given web application and generate recommendations
19ITDS1015B	Optimization Techniques For Data Analysis		
		CO1	Understand the concept of optimality criteria for various types of optimization problem
		CO2	Analyze optimization algorithms for Linear Programming
		CO3	Solve various constrained and unconstrained nonlinear programming problems
		CO4	Apply the modern optimization methods to provide optimal solution for a given problem.
19MTMC1026	Research Methodology and IPR		
		CO1	Acquire an overview of the research methodology andtechniquesto define research problem

		CO2	Review the literature and identify the problem.
		CO3	Analyze the optimum sampling techniques for collected data.
		CO4	Apply various forms of the intellectual properties for research work.
19ITDS1051	Machine Learning Lab		
		CO1	Implement classification problems with decision trees, support vectors
		CO2	Demonstrate Neural network, genetic algorithms
		CO3	Apply different Bayesian learning techniques
		CO4	Solve distance based supervised and unsupervised learning problems
19ITDS1052	Python For Datascience Lab		
		CO1	Implement python programming constructs to build small to large scale applications
		CO2	Manipulate one-dimensional and multi-dimensional Numpy arrays, and pandas series and data frames

		CO3	Perform data loading, cleaning ,transformation and merging
		CO4	Create different plots for basic exploratory data analysis
19ITDS2001	Data Visualization		
		CO1	Comprehend the importance of the exploratory data analysis paradigm
		CO2	Understand basic concepts of data visualization
		CO3	Select appropriate data visualization technique for given data
		CO4	Design visualizations for presenting stories from data
19ITDS2002	Big Data Management		
		CO1	Understand The Fundamental Concepts Of Big Data and HDFS.
		CO2	Solve Big Data Problems Using MapReduce, Pig And Hive.
		CO3	Use NoSQL Databases To Process Different Varieties of Data.

		CO4	Perform In Memory Data Analytics With Spark and Spark Streaming.
19ITDS2003	**Business Analytics**		
		CO1	Understand Business Analytics and manipulate data
		CO2	Analyze the fundamental tools and methods of data analysis and statistics.
		CO3	Develop approaches for applying forecasting techniques and data mining techniques.
		CO4	Identify, model and solve decision problems in different settings
19ITDS2014A	**Computer vision**		
		CO1	Understand and master basic knowledge, theories and methods in computer vision
		CO2	Understand various feature extraction methods and its significance.
		CO3	Analyze various clustering and classification techniques.
		CO4	Understand and analyze Video Processing methods.
19ITDS2014B	**Deep Learning**		
		CO1	Understand basic concepts of neural networks and back propagation algorithm
		CO2	Analyze the layers in the architecture of convolution neural networks
		CO3	Acquire knowledge on auto encoders, word2vec architecture
		CO4	Explore deep learning models for sequence analysis

19ITDS2015A	Natural Language Processing		
		CO1	Comprehend the concepts of natural language processing, its applications and language modeling techniques
		CO2	Evaluate probabilistic language models and Solve NLP sub problems using tokenizing and tagging
		CO3	Analyze linguistic structure in text, using parsing and CFG
		CO4	Interpret Methods to recognize syntactic and semantics structures of a sentence
19ITDS2015B	Cyber Security		
		CO1	Identify the assets of information and significance of security.
		CO2	Apply data leakage, protection and security policies on digital systems.
		CO3	Analyse log files and backup strategies for securing the data in real time environment.
		CO4	Implement the issues in handling web vulnerabilities.
19MTAC2036	Technical Report Writing		
		CO1	Understand the significance of Technical Report Writing.
		CO2	Develop proficiency in writing technical reports.
		CO3	Apply the basic principles to prepare documentation using LATEX.

		CO4	Understanding the need of Bibliography and Reference Books for quality report writing
19ITDS2063	Term Paper		
		CO1	Identify real world problems related to Data Science area
		CO2	Analyse the problems from its state of the art for arriving at feasible solutions
		CO3	Prepare an organized report employing elements of technical writing & critical thinking
		CO4	Summarize and communicate the content to audience in an effective manner
19ITDS2051	Big Data And Visualization Lab		
		CO1	Implement big data analytics using Hadoop MapReduce, PIG and Spark.
		CO2	Process Semi Structured and un Strctured data using NoSQL databases
		CO3	Construct visualizations for effective data analysis
		CO4	Build interactive dashboards for better decision making
19ITDS2052	Business Analytics Lab		
		CO1	Understand the principles of business analytics

		CO2	Predict the insights using tools and methods of data analysis and statistics.
		CO3	Develop approaches to applying forecasting and data mining techniques.
		CO4	Implement the models to solve decision problems for different applications
19ITDS3061	**Project Part-A**		
		CO1	Identify a topic in relevant areas of Data Science
		CO2	Review literature to identify gaps and define objectives & scope of the project
		CO3	Apply appropriate research methodology to provide a solution to the chosen problem
		CO4	Prepare a technical report effectively using modern tools
19ITDS4061	**Project Part-B**		
		CO1	Identify methods and resources to carry out analysis and experiments
		CO2	Reorganize the procedures with a concern for society, environment and ethics
		CO3	Generate possible alternative solutions to chosen problem, compare, analyze them and derive performance metrics of the result
		CO4	Prepare a comprehensive report of the project work and also explore the possibility of publishing the work.