Department of Information Technology

M.SC (DS)

PROGRAM OUTCOMES

PO- 1: Learners will acquire proficiency in the field of Data Science.

PO- 2: Learners will upgrade and strengthen analytical and research skills.

PO- 3: Learners will apply acquired knowledge, tools, and techniques in an ethical and professional manner.

PO- 4: Learners will enhance future ready skills for Industry and Academics.

PO- 5: Learners will be trained in leadership skills and demonstrate social responsibilities with sensitivity towards sustainability.

Program: M.Sc. (Data Science)

Year: Part I

Semester: I

Course: Statistical Methods and Linear Programming

Course Code: MDS101

Course Outcomes:

After completion of the course,

The learner will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	identify the fundamental concepts of expert system and its applications.	PO1, PO2, PO4
CO 2 (Understanding)	Understand the probability and concept of fuzzy sets for solving AI based problems.	PO1, PO2, PO4

CO 3 (Applying)	apply Moments to calculate measures of skewness and kurtosis.	PO1, PO3, PO4, PO5
CO 4 (Analysing)	analyse different Measures of Central Tendency.	PO1, PO2, PO4
CO 5 (Evaluating)	Compare solutions of Linear Programming Problems by graphical and simplex methods.	PO1, PO4, PO5
CO 6 (Creating)	Formulate LPP problems and designing solutions by various soft computing approaches for a given problem.	PO1, PO3, PO5

Program: M.Sc. (Data Science)

Year: Part I

Semester: I

Course: Advanced Database Management Systems

Course Code: MDS102

Course Outcomes:

After completion of the course,

The learner will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	identify advance database concepts and database models.	PO1, PO2
CO 2 (Understanding)	explain various terms related to transaction management.	PO1,PO2
CO 3 (Applying)	apply queries on database.	PO1, PO3, PO4, PO5
CO 4 (Analysing)	analyse the concept of object- relational	PO1, PO2,

	database in development of various real time software.	PO4, PO5
CO 5 (Evaluating)	evaluate different database designs and architecture.	PO1, PO2, PO4, PO5
CO 6 (Creating)	create and manage different types of databases.	PO1, PO3, PO4, PO5

Program: M.Sc. (Data Science)

Year: Part I

Semester: I

Course: Data Mining for Business Intelligence

Course Code: MDS103

Course Outcomes:

After completion of the course,

Learners will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	identify various patterns hidden in the data and recognise usefulness of business intelligent systems.	PO-1, PO-2,PO-4
CO 2 (Understanding)	demonstrate the Data Mining concepts and the necessary libraries to be used in algorithms in python.	PO-2,PO-4
CO 3 (Applying)	apply the life cycle of Knowledge Discovery Process and calculate the accuracy of the model	PO-2,PO-3,PO-4
CO 4 (Analysing)	analyse the Data using various Data Mining algorithms and appraise new data sets	PO-2,PO-3,PO-4
CO 5 (Evaluating)	assess and evaluate theoretical concepts of Data Mining with their applications	PO-2,PO-4, PO-5

CO 6 (Creating)	compile strengths and weaknesses of popular approaches of Data Mining	PO-2,PO-4, PO-5

Program: M.Sc. (Data Science)

Year: Part I

Semester: I

Course: Data Science – I

Course Code: MDS104

Course Outcomes:

After completion of the course,

The Learner will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	describe basics of R programming.	PO-1, PO-4
CO 2 (Understanding)	explain interfaces of R, Vectorizing Matrix operations.	PO-1, PO-4
CO 3 (Applying)	illustrate different control structures, functions and scoping rules of R and apply debugging in R.	PO-1, PO-3,PO-4
CO 4 (Analysing)	analyse the coding standards of R	PO-1, PO-2, PO-3,PO-4
CO 5 (Evaluating)	evaluate R programming with data analysis case study.	PO-1, PO-2, PO-4
CO 6 (Creating)	design data analysis models using R programming.	PO-1, PO-2, PO-4

Program: M.Sc. (Data Science)

Year: Part I

Semester: II

Course: Advanced Statistical Methods

Course Code: MDS201

After completion of the course,

Learners will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	identify the fundamental concepts of expert system and its applications.	PO-1, PO-2, PO-4
CO 2 (Understanding)	demonstrate probability and concept of fuzzy sets for solving AI based problems.	PO-1, PO-2, PO-4
CO 3 (Applying)	apply fuzzy system for solving problems.	PO-2, PO-3, PO-4
CO 4 (Analysing)	analyse the applications of genetic algorithms in different problems related to artificial intelligence.	PO-2, PO-3, PO-4
CO 5 (Evaluating)	summarize knowledge representation techniques in natural language	PO-2, PO-4, PO-3
CO 6 (Creating)	plan and design solutions by various soft computing approaches for a given problem	PO-2, PO-4, PO-5

Program: M.Sc. (Data Science)

Year: Part I

Semester: II

Course: Machine Learning

Course Code: MDS202

After completion of the course,

Learners will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	identify various patterns hidden in the data set and recognise useful data for Machine Learning Algorithms	PO-1, PO-2, PO-4
CO 2 (Understanding)	demonstrate the concepts in python and necessary libraries for Machine Learning algorithms using python.	PO-2, PO-4
CO 3 (Applying)	apply various algorithms to the model and understanding the accuracy of the model.	PO-2, PO-4
CO 4 (Analysing)	analyse the Data using various Machine Learning algorithms and testing new data sets.	PO-2, PO-4
CO 5 (Evaluating)	assess and evaluate the tests with dummy data sets and different models of Machine Learning	PO-2, PO-4, PO-3
CO 6 (Creating)	Organise machine learning data using model complexity.	PO-2, PO-4, PO-5

Program: M.Sc. (Data Science)

Year: Part I

Semester: II

Course: Linear Algebra

Course Code: MDS203

After completion of the course,

Learners will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	describe linear structures verbally, geometrically, symbolically, and numerically.	PO-2, PO-3
CO 2 (Understanding)	understand algebraic and geometric representations of vectors in R^n and their operations, including addition, scalar multiplication and dot product	PO-2, PO-3
CO 3 (Applying)	apply the terminology and notation of Linear Algebra correctly and appropriately in a variety of abstract and applied contexts.	PO-3, PO-2
CO 4 (Analysing)	analyse and compare algorithms used to solve linear algebra problems.	PO-2, PO-3
CO 5 (Evaluating)	Evaluate the matrix calculations for at least $3\times3, 3\times3$ matrices: row echelon form, reduced row echelon form, matrix inverse, and a variety of arithmetic operations.	PO-2, PO-3
CO 6 (Creating)	construct linear models for a variety of applied problems.	PO-2, PO-3

Program: M.Sc. (Data Science)

Year: Part I

Semester: II

Course: Research Methodology

Course Code: MDS204

After completion of the course,

Learners will be able to

No	Course Outcome	PO Mapping
CO 1 (Remember)	define different methodologies and techniques used in research work.	PO-1, PO-2, PO-3
CO 2 (Understanding)	explain basic computer skills necessary for the conduct of research.	PO-1, PO-2, PO-3
CO 3 (Applying)	apply the basic function and working of analytical instruments used in research	PO-1, PO-2, PO-3
CO 4 (Analysing)	Select the required numerical skills necessary to carry out research.	PO-1, PO-2, PO-4
CO 5 (Evaluating)	summarize the research problem, appropriate research design.	PO-1, PO-2, PO-3
CO 6 (Creating)	devise the procedures of sampling, data collection, analysis and reporting.	PO-1, PO-2, PO-5