DEPARTMENT OF DATA SCIENCE
PROGRAMME OUTCOMES AND COURSE OUTCOMES OF UNDER GRADUATE (2024 ONWARDS)

NAME OF THE PROGRAMME: BACHELOR SCIENCE OF DATA SCIENCE – PROGRAMME OUTCOME	
PO1	**Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that forma part of an undergraduate Program me of study.
PO2	**Communication Skills:** Ability to express thoughts and ideas effectively in writing and orally Communicate with others using appropriate media confidently share one's views and express herself/himself demonstrate the ability to listen carefully, read and write analytically and present complex information in a clear and concise manner to different groups.
PO3	**Critical thinking:** Capability to apply analytic thought to a body of knowledge analyze and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence identify relevant assumptions or implications formulate coherent arguments critically evaluate practices, policies and theories by following scientific approach to knowledge development.
PO4	**Problem solving:** Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge and apply one's learning to real life situations.
PO5	**Analytical reasoning**: Ability to evaluate there liability and relevance of evidence identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples and addressing opposing viewpoints.
PO6	**Research-related skills**: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesizing and articulating; Ability to recognize cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyze, interpret anddrawconclusionsfromdata,establishhypotheses,predictcause-and-effect relationships; ability to plan, execute and report the results of an experimenter investigation.
PO7	**Cooperation /Teamwork :** Ability to work effectively and respectfully with diverse teams facilitate cooperative or coordinated effort on the part of a group and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
PO8	**Scientific reasoning**: Ability to analyze interpret and draw conclusions from quantitative/qualitative data and critically evaluate ideas, evidence, and experiences from an open-minded and reasoned perspective.
PO9	**Reflective thinking**: Critical sensibility to lived experiences, with self-awareness and

	reflexivity of both self and society.
PO10	**Information/digital literacy:** Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.
PO11	**Self-directed learning**: Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.
PO12	**Multicultural competence:** Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engaging multicultural society and interact respectfully with diverse groups.
PO13	**Moral and ethical awareness/reasoning**: Ability to embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights appreciating environmental and sustainability issues; and adopting objective unbiased and truthful actions in all aspects of work.
PO14	**Leadership readiness/qualities:** Capability for mapping out that asks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.
PO15	**Lifelong learning:** Ability to acquire knowledge and skills including learning how to learn", that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of workplace through knowledge/skill development/rescaling.

NAME OF THE PROGRAMME: DATA SCIENCE – COURSE OUTCOMES	
SEMESTER I	
Python Programming	1 Learn the basics of python, Do simple programs on python, Learn how to use an array.
	2 Develop program using selection statement, Work with Looping and jump statements, Do programs on Loops and jump statements.
	3 Concept of function, function arguments, Implementing the concept strings in various application, Significance of Modules, Work with functions, Strings and modules.
	4 Work with List, tuples and dictionary, Write program using list, tuples

		and dictionary.
	5	Usage of File handlings in python, Concept of reading and writing files, Do programs using files.
Python Programming Lab	1	Demonstrate the understanding of syntax and semantics
	2	Identify the problem and solve using PYTHON programming techniques.
	3	Identify suitable programming constructs for problem solving.
	4	Analyze various concepts of PYTHON language to solve the problem in an efficient way.
	5	Develop a PYTHON program for a given problem and test for its correctness.
ALLIED **NUMERICAL METHOD I**	1	Solve the problems of fitting of straight lines, parabolas and the different form of exponential curves.
	2	Solve algebraic equations using various methods like Bisection method, Iteration method, Regula Falsi method and Newton – Raphson method.
	3	Estimate the solution of simultaneous linear equations using different numerical methods .
	4	Define basic concept of operators Δ, ∇ and E, Solving interpolation with equal intervals problems using Gregory Newton"s forward formula and Newton"s backward formula.
	5	Estimate the solution of central difference formula using the methods Gauss's forward, backward formula, Stirling's formula and Bessel's formula .
SEC -2 Fundamental of Information Technology	1	Understand basic concepts and terminology of information technology.
	2	Have a basic understanding of personal computers and their operations.
	3	Be able to identify issues related to information security.
	4	Develop MS Office applications knowledge and skills
	5	To use the Internet safely, legally, and responsibly

FC – 1 DIGITAL COMPUTER FUNDAMENTAL	1	Appreciate and understand the differences between hardware and software.
	2	Analyze a given problem and develop an algorithm to solve the problem.
	3	Improve upon a solution to a problem.
	4	An ability to understand and appreciate Boolean algebraic expressions to digital design
	5	Know and use different number systems and the basics of programming
SEC II HANDS ON TRAINING IN EXCEL	1	Demonstrating the basic mechanics and navigation of an Excel spreadsheet.
	2	Using clip art to enhance ideas and information in Excel worksheets.
	3	Learning formulas, creating charts and graphs that can easily explain or simplify complex information or data.
	4	Working knowledge of organizing and displaying large amounts and complex data.
	5	Analyzing data using Pivot Tables and Pivot Charts.

HOD   **PRINCIPAL**