

Bhavan's Vivekananda College  
of Science, Humanities and Commerce  
Sainikpuri, Secunderabad – 500 094  
Autonomous College - Affiliated to Osmania University  
Accredited with 'A' grade by NAAC

**B Sc (Honours) Data Science**

**Program Outcomes**

**PO1 Knowledge:** Acquire the knowledge with facts and figures related to Mathematics, Physics, Electronics, Computer Science and Statistics and understand the basic concepts, fundamental principles and scientific theories related to various scientific phenomena and their relevance in day-to-day life.

**PO2 Skills:** Acquire the skills in handling scientific instruments & skills of observation and drawing logical inference from scientific experiments.

**PO3 Modern Tool Usage:** Apply appropriate techniques, skills, modern tools and IT tools to practice.

**PO4 Creativity & Analysis:** Think creatively to propose novel ideas in explaining the evidence of data and provide new solutions to the problems and analyse the given scientific data systematically and have the ability to draw conclusion.

**PO5 Communication:** Communicate effectively on problems, issues and solutions with community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO6 Ethics & Environment:** Apply ethical principles and commit to professional ethics and responsibilities and norms in research and the functional areas, understand the issues of environmental context and sustainable development.

**PO7 Individual and Team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO8 Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context of socio, economic and technological changes.

**Course Outcomes:****Semester I:**

Name of the Course	English for Technical Communication I
Course Code	HDS121
CO1	Demonstrate an understanding of effective communication, reading comprehension and appropriate usage of tenses.
CO2	Apply effective written communication skills and achieve Note Making, Summarizing, Précis, and appropriate usage of Abbreviations and Numericals.
CO3	Implement effective oral communication skills and participate in Group Discussion, and make appropriate use of Active and Passive Voice.
CO4	Exhibit an understanding of Non-verbal Communication and Body Language, compose Emails, and apply appropriate Punctuation and Capitalization.

Name of the Course	Differential Equations
Course Code	HDS122
CO1	After learning the course the students will be equipped with few methods to solve different types of differential equations that arise in several branches of science.
CO2	The application of first order differential equations to carbon dating and radio activity, estimation of time and death, absorption of drugs in cell, the problem of epidemiology, motion of a rocket, path of guided missile are few applications of differential equations of first order.
CO3	Higher order linear differential equations led to the development of special functions which has great importance in physical sciences, also used in rectilinear motion, resonance, hanging cable, civil and electrical engineering, economics, cardiology and detection of diabetes. Use analytical methods to find solutions higher order linear differential equations. Finding solutions of non-homogenous higher order linear differential equations, and learn to solve partial linear differential equations of first order.

Name of the Course	Computational Statistics
Course Code	HDS123
CO1	Develop skills in presenting quantitative and qualitative data using appropriate diagrams, tabulations and construction of frequency distributions.
CO2	Evaluate data using measures of central tendency, dispersion and interpret the higher order measures of central tendency.
CO3	Calculate probabilities by applying probability laws and theory.
CO4	Apply key concepts of probability, including discrete and continuous random variables, Probability functions, Generating functions, expectations and variances.

Name of the Course	Programming in 'C'
Course Code	HDS124
CO1	Develop Simple C programs.
CO2	Implement different control statements.
CO3	Develop C programs using functions and pointers.
CO4	Apply the concepts of structures, unions, enumerated data types and files.

Name of the Course	Operating Systems
Course Code	HDS125
CO1	Paraphrase the basic concepts of Operating Systems and its structure.
CO2	Summarize the various process management services and process scheduling algorithms.
CO3	Determine the process scheduling algorithm or the Deadlock Handling Method to be used.
CO4	Discuss the process of memory and virtual memory managements.

Name of the Course	Environmental Studies
Course Code	AECC-1
CO1	Appraise various sustainable practices to conserve Biodiversity and Natural Resources.
CO2	Analyse the effects of human activity on the environment.

**Semester II:**

Name of the Course	English for Technical Communication II
Course Code	HDS221
CO1	Demonstrate Data/Professional Ethics, ability to Interpret Data and Transfer Information, and appropriate usage of Conditionals.
CO2	Set Goals, compose Reports and apply Technical Vocabulary.
CO3	Exhibit Time Management skills and Presentation Skills, and avoid Common Errors and Misappropriations.
CO4	Apply Critical Thinking, compose Application for Job and CV, and demonstrate Proofreading skills.

Name of the Course	Real Analysis
Course Code	HDS222
CO1	Learn fundamental properties of the real numbers that lead to the formal development of real analysis.
CO2	Comprehend rigorous arguments developing the theory underpinning real analysis.
CO3	Understand the concepts of limits and how they are used in sequences, series, differentiation and integration.
CO4	Construct rigorous mathematical proofs of basic results in real analysis.

Name of the Course	Probability and Statistical Methods
Course Code	HDS223
CO1	Solve the real life problems related to bivariate random variable.
CO2	Understand various discrete distributions, with real time applications.
CO3	Understand various Continuous distributions, with real time applications.
CO4	Compute an interrelation between the variables using Correlation and regression analysis.

Name of the Course	Database Management Systems
Course Code	HDS224
CO1	Acquire knowledge on database concepts.
CO2	Understands about E-R and EER model.
CO3	Aware of Relational model and Normalization.
CO4	Understand technical and management roles of

	database administration & data administrator.
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Name of the Course	Introduction to Data Science
Course Code	HDS225
CO1	Understand Data Science and Big Data.
CO2	Learn Machine Learning and Big Data process steps.
C03	Apply Big data using NoSQL and representation of database graph.
CO4	Manage test mining and data visualization techniques.

Name of the Course	Fundamentals of Computers
Course Code	AECC-II
CO1	Identify and analyze the computer components.
CO2	Understand the Boolean Algebra and reduction techniques and become familiar with computer softwares.