Villa Marie Degree College for Women
(Affiliated to Osmania University)
Somajiguda, Hyderabad
An ISO 9001:2015 Certified Institution
Department of Commerce
Department of Mathematics and Statistics.

Course Details – 2021-2022

MATHEMATICS

S.No	Course Title	Course Code	Course Objective	Course Outcome
1.	Differential & Integral Calculus	DSC-IA	• To expose basic notions in differential calculus. • Well trained in concepts of partial differentiation. • Calculate the centre of curvature, radius of curvature, chord of curvature. • Achieve confidence in surfaces of revolution problems	• Realize wide ranging applications of differentiation. • Apply Concepts of partial differentiation. • Analyse functions using radius of curvature, chord of curvature. • Recognize the appropriate tools of calculus to solve applied problems.
2.	Differential Equations	DSC-1B	• To introduce techniques of solving differential equations. • Familiarize solving Linear Differential Equations with integrating Factors. • Acquaint with methods of solving linear differential equations • To provide Knowledge in methods for solving higher order nonlinear differential equations.	• Understand the tools of differential equations that arise in several branches of science. • Analyse Solving techniques of Linear Differential Equation. • Comprehend the applications of first order differential equation. • Use the appropriate tools for solving higher order differential equations.
3.	Real Analysis	DSC-1C	• To acquaint with Concepts of the Real Analysis. • To provide Knowledge of sequences and series. • To familiarize the usage of continuous functions. • Utilize concepts of Riemann integral along with properties	• Analyse the concepts of real analysis. • Evaluate limits of sequences and series. • Understand the properties of continuous functions. • Learn important concepts of Riemann integration.

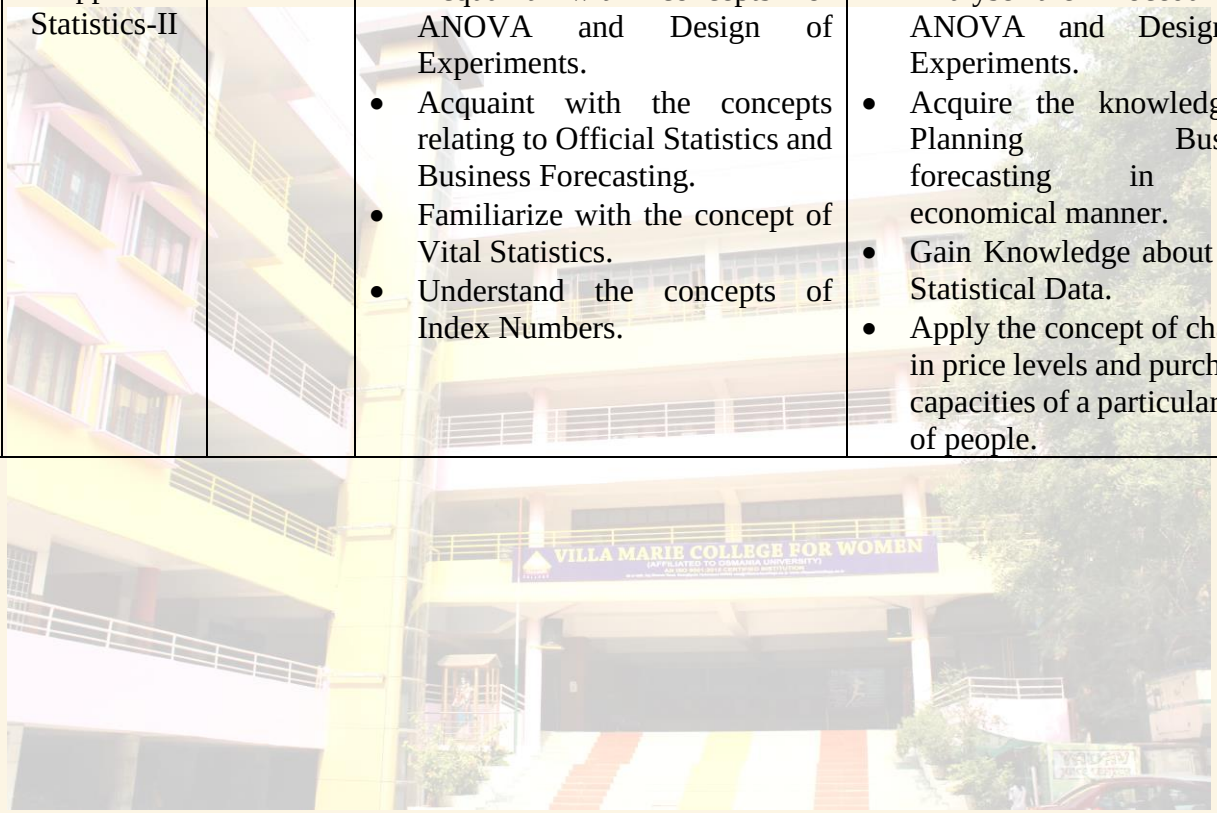
4.	Algebra	DSC-1D	• To provide the knowledge of basic algebraic structures like groups, rings etc. • Acquaint cayley's theorem along with the properties of isomorphism. • Familiarize with cosets and Lagrange's theorem of Group. • To introduce concepts of Cyclic groups.	• Understand algebraic structures that arise in matrix algebra. • Use properties of Isomorphism. • Comprehend the concept of permutation groups and their properties. • Analyse cyclic groups with their properties.
5.	Linear Algebra	DSC-E	• To expose various concepts of vector spaces, basis, dimension, Eigen values etc. • Familiarize basic terms and concepts of matrices, vectors and complex numbers. • Provide the matrix calculus in solving a system of linear algebraic equations. • Elicit the use of various forms of complex numbers to solve numerical problems.	• Prepare a research design and to select appropriate tools in analysis and interpretation of data. • Understand basic concepts of linear algebra • Solve computational problems of linear algebra • Use the MATLAB software package by solving linear algebra problems.
6.	Numerical Analysis	DSC-1F	• Students will be made to understand some methods of numerical analysis • Solving equations of one variable using different 7methods in algebra • Computation of Interpolation Polynomials for given data. • Comprehensive the use of methods for Solving Numerical Differentiation & Integration.	• Students realize the importance of the subject in solving some problems of algebra and calculus • Usage of zeros of polynomials concept • Understanding interpolation and polynomial approximation. • Proper understanding of the Richardson extrapolation and the various integration methods.

Course Details – 2021-2022

STATISTICS

S.No	Course Title	Course Code	Course Objective	Course Outcome
1.	Descriptive Statistics & Probability	DSC- A	• Familiarize with concepts of Basic Concepts of Statistics. • Acquaint with the concept of Probability Theory. • Understand the procedures for to solve Random Variable Problems. • Well trained in concepts of Mathematical Expectations and Generating Functions.	• Prepare and Analyse the Questionnaire based on Statistical Survey. • Apply the concepts of Probability Theory. • Acquire the Knowledge of Probability Distributions. • Resolve Generating Functions on different Methods
2.	Probability Distributions	DSC-B	• To Provide Knowledge about Probability Distributions. • Acquaint with the Procedures of Geometric and Negative Binomial distributions. • Familiarize with the concept and Procedures of Normal Distribution. • Understand the procedures of Beta and Gamma distributions.	• Differentiate Discrete and Continuous Distributions. • Acquire the knowledge of Geometric and Negative Binomial Distribution. • Resolve applications of Normal Distribution. • Acquire the knowledge of Beta and Gamma Distribution.
3.	Statistical Methods and Estimation	DSC - C	• To acquaint with Correlation and Regression analysis. • Familiarize with the concept of Attributes. • Provide Knowledge about Exact Sampling Distributions. • Acquire Classical approach of the Inferential procedures.	• Analyse and acquire Knowledge relating to Correlation and Regression. • Apply the techniques and procedures of Attributes. • Acquire the knowledge about Exact Sampling Distributions • Gain and Understand the Procedures of Statistical Inference
4.	Statistical Inference	DSC-D	• Acquaint with concepts of Hypothetical testing of statistical Data. • Familiarize with the concepts of Difference of Large samples. • Understand the Procedures of Small Sample tests. • Provide Knowledge with the Concept of Non-Parametric Tests.	• Understand the Procedures of Testing of hypothesis. • Apply the Concepts of Large Sample Tests. • Acquire the knowledge of solving the problems related to small sample tests. • Analyze the Procedures of Non-Parametric Tests.

5.	Applied Statistics-I	DSE-A	• To expose various concepts of planning and selection of appropriate Sampling Techniques. • Familiarize with the Procedures of Heterogeneous Sampling Methods. • Provide with the Knowledge of the concept and Procedures of Time Series. • Familiarize with the Procedures of Statistical Quality Control.	• Gain and understand the selection of appropriate Sampling Procedure. • Apply Stratified Random Sampling Method. • Acquire the knowledge of fluctuations of trend and their types. • Apply the Techniques of Statistical Quality Control Methods.
6.	Applied Statistics-II	DSE-B	• Acquaint with concepts of ANOVA and Design of Experiments. • Acquaint with the concepts relating to Official Statistics and Business Forecasting. • Familiarize with the concept of Vital Statistics. • Understand the concepts of Index Numbers.	• Analyse the Procedures of ANOVA and Design of Experiments. • Acquire the knowledge of Planning Business forecasting in very economical manner. • Gain Knowledge about Vital Statistical Data. • Apply the concept of changes in price levels and purchasing capacities of a particular class of people.



Course Details – 2021-2022

COMPUTER SCIENCE

S.No	Course Title	Course Code	Course Objective	Course Outcome
1	Programming in C	BS106	* To gain the knowledge in understanding the fundamentals of computers. • C programming and will be able to code, compile test C programs. • Recognize where the 'C' language stands among all other languages. • Describe how type conversion takes place.	• Ability to define and manage data structures based on problem subject domain. • Ability to work with textual information, characters and strings. • Ability to work with arrays of complex objects. • Understanding a concept of object thinking within the framework of functional model.
2	Programming in C++	BS206	• To understand how C++ improves C with object-oriented features. • To learn how to write inline functions for efficiency and performance. • To learn the syntax and semantics of the C++ programming language. • To learn how to design C++ classes for code reuse.	• Understand the difference between the top-down and bottom-up approach • Describe the object-oriented programming approach in connection with C++ • Apply the concepts of object-oriented programming • Illustrate the process of data file manipulations using C++
3	Data Structures using C++	BS306	• Ability to analyse algorithms and algorithm correctness. • Ability to summarize searching and sorting techniques • Ability to describe stack, queue and linked list operation. • Ability to have knowledge of tree and graphs concepts.	• Learn the basic types for data structure, implementation and application. • Know the strength and weakness of different data structures. • Use the appropriate data structure in context of solution of given problem. • Develop programming skills which require solving given problem.
4	Python 1(SEC)		• To explain a basic introduction to object-oriented and procedural programming using Python. • To acquire knowledge and programming skills in python to	• Students will be able to understand why Python is a useful scripting language for developers.

			solve problems in different domains	• Students will learn how to design and program Python applications.
5	Database Management Systems	BS406	• How to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS. • Be able to write data retrieval queries and evaluate the result set. • Be able to write SQL statements that edit existing data. • Be able to write SQL statements that create database objects.	• Describe the fundamental elements of relational database management systems • Relational data model, entity-relationship model, relational database design, relational algebra and SQL. • Convert the ER-model to relational tables • Improve the database design by normalization
6	Python 2(SEC)		• To understand basics of lists, tuples. • To Understand Dictionaries and GUI Programming in Python.	• Will be able to define lists and tuples and how to manipulate them, how to use these object types in python program. • Acquired Object Oriented Skills in Python, to develop the skill of designing Graphical User Interfaces in Python.
7	Programming in Java	BS505	• To equip students with Object Oriented Programming concepts. • To make the students understand the basics of JAVA Language. • To make the students understand creation of packages and built in packages, handling exceptions and creating threads in java programming. • To make students understand creation of user interface applications using Applet class and AWT, connecting to Database	• Students are able to develop simple java applications using OOPs Concepts. • Students are able to create user defined packages, inherit built-in classes & Interfaces. • Students are able to write programs for user defined exceptions. • Students are able to write programs using Applets and AWT.
8	Information Technologies(GE)	BS501	• Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming	• Solving problems properly, achieving an implementation that is correct, effective and efficient.

			• Understand processes, threads, files, semaphores, IPC abstractions, shared memory regions • Be able to understand data retrieval queries and evaluate the result set. • To develop an understanding of computer networking basics	• Understand processes, threads, files, semaphores, IPC abstractions, shared memory regions • Learn networking basics like various types of networks and topologies. • Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
9	Web Technologies	BS605	• To gain skills of usage of Web Technologies to design web pages • Become familiar with graphic design principles that relate to designing. • Develop skills in analysing the usability of a web site.	• Students are able to write programs using the basics of HTML. • Understand about difference between with presentation styles and content of the document. • Understand about creating user defined functions, built in functions, objects in JavaScript, Event Handling Mechanism and types of events.