YADAVA COLLEGE

(An Autonomous Co-Educational Institution)

Govindarajan Campus, Thiruppalai, Madurai – 625014.

DEPARTMENT OF COMPUTER APPLICATIONS

CBCS (2022 – 2023)

COURSE CONTENT

YADAVA COLLEGE

(An Autonomous Co-Educational Institution)
Govindarajan Campus, Thiruppalai, Madurai – 625014.

DEPARTMENT OF COMPUTER APPLICATIONS

Programme Specialization:

- BCA full form is **Bachelor of Computer Applications**.
- It is a professional undergraduate program, focuses mainly on computer application concepts.
- The course duration for BCA is 3 years.
- It comes with the core subjects like- Web Technology, Software Engineering, Relational Database Management systems, and computer networks, etc…..
- The eligibility criteria for the BCA course should have a mathematical and computer science background in 10+2.
- BCA course has a large scope in industries since most of the industry relies upon computer applications for smoother works.
- Bachelor of Computer Applications [BCA] is proved to be a popular career choice for a lot of students.

Programme Outcomes:

- The students will be ready to work effectively both as an individual and a team leader on multidisciplinary projects.
- Inculcates the ability to analyze, identify, formulate and develop computer applications using modern computing tools and techniques.
- Prepares to create design innovative methodologies for solving complex-real life problems for betterment of the society.
- To integrate ethics and values in designing computer applications.

Programme Specific Outcomes:

- Start from the basics and in every semester learns each and everything about computers.

- Develop programming skills, networking skills; learn applications, packages, programming languages and modern techniques of IT.

- Learn programming language such as Java, Python, HTML, SQL, etc.…

- Focuses on preparing student for roles pertaining to computer applications, IT and Software industries.

- Gives overview of the topic in Software Engineering, networking, computer graphics, web development, RDBMS, and hardware and software skills.

- Information about various computer applications and latest development in IT and communication system is also provided.

- Student will able to know various issues, latest trends in technology development and thereby innovate new ideas and solutions to existing problems.

- Bachelor in computer applications (BCA) gives a number of opportunities to individuals to go ahead and shine in their lives.

- Students will able to understand, analyse and develop computer programs in the areas related to algorithm, system software, web design and networking for efficient design of computer-based system.

- Students being like software programmer, system and network administrator, web designer faculty for computer science and computer applications.

DEPARTMENT OF COMPUTER APPLICATIONS
YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS
UNDERGRADUATE PROGRAMME

B.C.A. (BACHELOR OF COMPUTER APPLICATIONS)

Semester	Part Code	Subject Code	Title of the Paper	Teaching		Marks	
				Hours	Credits	Internal	External
I	I		Tamil	5	3	25	75
	II		English	5	3	25	75
	III		**Core I**: Programming in C	6	3	25	75
	III		**Core II**: Programming in C - LAB	5	3	40	60
	III		**Allied I**: Discrete Mathematics	5	5	25	75
	IV		Environmental Studies	2	2	25	75
			Skill Based Elective (Communicative English)	2	2	25	75
Total				**30**	**21**		
II	I		Tamil	5	3	25	75
	II		English	5	3	25	75
	III		**Core III**: Programming in Java	6	3	25	75
	III		**Core IV:** Programming in Java - LAB	5	3	40	60
	III		**Allied II**: Statistics	5	5	25	75
	IV		Value Education	2	2	25	75
			Skill Based Elective (Communicative English)	2	2	25	75
Total				**30**	**21**		

Semester	Part Code	Subject Code	Title of the Paper	Teaching		Marks	
				Hours	Credits	Internal	External
III	I		Tamil	5	3	25	75
	II		English	5	3	25	75
	III		**Core V**: Programming in Python	4	3	25	75
	III		**Core VI**: Programming in Python - LAB	3	3	40	60
	III		**Allied III**: Digital Computer Fundamentals	5	5	25	75
	III		**Elective I**: 1. Web Technology 2. Wireless Networks 3. System Software	4	3	25	75
	IV		NME: Fundamentals of Computers	2	2	25	75
			Skill Based Elective (Communicative English)	2	2	25	75
	Self-Study		Computer Organization & Architectures	---	3	25	75
Total				**30**	**24**		
IV	I		Tamil	5	3	25	75
	II		English	5	3	25	75
	III		**Core VII**: Relational Database Management Systems	4	3	25	75
	III		**Core VIII**: SQL and PL/SQL - LAB	3	3	40	60
	III		**Allied IV**: Computer Based Financial Accounting	5	5	25	75
	III		**Elective II**: 1. Multimedia Systems 2. Internet Programming 3. Quantitative Aptitude	4	3	25	75
	IV		NME: Desktop Publishing	2	2	25	75
			Skill Based Elective (Communicative English)	2	2	25	75
	Self-Study		Open-Source Technology	---	3	25	75
Total				**30**	**24**		

Semester	Part Code	Subject Code	Title of the Paper	Teaching		Marks	
				Hours	Credits	Internal	External
V	III		**Core IX**: PHP Programming	5	4	25	75
	III		**Core X**: Operating System	5	4	25	75
	III		**Core XI**: Software Engineering	5	4	25	75
	III		**Core XII**: E-Commerce Technologies	5	4	40	60
	III		**Core XIII**: PHP Programming - LAB	4	3	25	75
	III		**Elective III**: 1. Computer Graphics 2. Data Mining and Warehousing 3. Network Security	4	4	25	75
	IV		Skill Based Elective (Soft Skills)	2	2	25	75
	Self-study		Android Programming	---	3	25	75
Total				**30**	**25**		
VI	III		**Core XIV**: Computer Networks	6	4	25	75
	III		**Core XV**: Software Testing	6	5	25	75
	III		**Core XVI**: Distributed Programming	6	5	25	75
	III		**Core XVII**: Distributed Programming - LAB	4	3	40	60
	III		**Elective IV**: 1. Mobile Computing 2. Project 3. Linux Programming	6	5	25	75
	IV		Skill Based Elective (General Knowledge)	2	2	25	75
	V		PE/NCC/NSS/EXT	---	1	25	75
	Self-study		Cloud Computing	---	3		
Total				**30**	**25**		

Total Hours	**180** hours
Total Credits	140 +12 (Self-study) = **152**
Total Marks	25 + 75 = **100** Marks
Exam Duration	**3** hours

CURRICULUM STRUCTURE

Study Components	No. of Courses	Credit per Course	Total Credits
Part – I Tamil	2+2 = 4	3	**12**
Part – II English	2+2 = 4	3	**12**
Part – III Core Subjects Allied Subjects Elective Subjects	17 04 04	4-5 5 3-5	**60** **20** **15**
Part – IV Skill Based Elective Environmental Studies Value Education Non-Major Elective	4+2 = 6 1 1 1+1 = 2	2 2 2 2	**12** **02** **02** **04**
Part – V **Extension Activities**	1	1	**01**
Total			**140** Credits
Self – Study (4 * 3 = 12)			**12**
Total Credits			**152** Credits

Study Components	No. of Courses	Hour per Course	Total Hours
Part – I Tamil	2+2 = 4	5	**20**
Part – II English	2+2 = 4	5	**20**
Part – III Core Subjects Allied Subjects Elective Subjects	17 04 04	3-6 5 4-6	**82** **20** **18**
Part – IV Skill Based Elective Environmental Studies Value Education Non-Major Elective	4+2 = 6 1 1 1+1 = 2	2 2 2 2	**12** **02** **02** **04**
Total			**180** Hours

BLUE PRINT OF THE QUESTION PAPER

B.C.A (BACHELOR OF COMPUTER APPLICATIONS)

Section	Types of Questions	No.of. Questions	No.of. Questions to be Answered	Marks of each Questions	Total
A	Short answer Questions (Open choice)	15	10	2	**20**
B	Paragraph Questions (Either or Choice)	5 (Either or Choice)	5	5	**25**
C	Essay type Questions (Open Choice)	5	3	10	**30**
Total					**75**

Paper-No: Core I

PROGRAMMING IN C

Semester: **I**   Subject Code:

Hours/Week: **6**   Total Hours/Semester: **90**

Credit: **3**

Objectives:

- This course is designed to provide a comprehensive study of the C programming language.

- It stresses the strengths of C, which provide students with the means of writing efficient, maintainable, and portable code and how to choose Programming language for solving a problem.

Unit: I

Overview of C: History of C-Importance of C-Basic Structure - Simple Programs - Constants, Variables, and Data Types: C Tokens Keywords and Identifiers - Constants Variables Data Types - Declaration of Variables-Operators and Expressions: Introduction Arithmetic Operators-Relational Operators-Logical Operators-Assignment Operators-Increment and Decrement Operators-Conditional Operators.

Decision Making and Branching: Introduction- Decision Making with IF statement-Simple IF Statement-The IF ELSE Statement-Nesting of IF ELSE Statements-The ELSE IF Ladder-The Switch Statement-The? Operator-The GOTO Statement-Decision Making and Looping: Introduction-The WHILE Statement-The Do Statement-The FOR Statement-Jumps in LOOPS.

Outcome:

- Acquire the basic knowledge of C programming language and develop simple applications in C using basic constructs.

Unit: II

Arrays and Strings: Introduction One Dimensional Array Declaration of One-Dimensional Arrays - Initialization of One-Dimensional Arrays - Two Dimensional Arrays - Initializing Two Dimensional Arrays-Multi-dimensional Array -Dynamic Arrays.

Character Arrays and Strings: Introduction- Declaring and Initializing String Variables- Reading string from Terminal- Writing Strings to Screen- Arithmetic Operations on Characters- Putting String together- Comparison of Two Strings- string – Handing Functions.

Outcome:

- Develop in depth knowledge in arrays and strings. Design and implement applications using arrays and strings.

Unit: III

      Functions and Pointers: Introduction User Defined Functions Multi-Function Elements of User defined functions Definition of function Return values and types Function Calls Declaration - Category of Functions No Arguments and no return values Arguments but no Return Values-Arguments with Return a value-No Arguments but Return a values-Functions that return multiple values- Nesting of Functions-Recursion.

Pointers: Introduction-Understanding Pointers-Accessing the Address of a Variable Declaring Pointer variables -Initialization of pointer variables-Accessing a variable through its pointer-chain of pointers Expression - Pointers and Arrays Pointers to Functions Pointers to Structures-Function returning pointers.

Outcome:

- Implement programming skills using C functions and pointers.

Unit: IV

      Structures and Unions: Introduction- Defining a Structure- Declaring structure variables - Accessing structure members - Structure initialization -Array of Structures-Structures within structures - Structures and Functions-Unions-Size of structures - Bit Fields.

Outcome:

- Acquire the knowledge of structure and union and write simple programs.

Unit: V

      File Management: Introduction - Defining a File - Opening a File - Closing a file - 1/0 operations on Files - Error Handling during I/O operations - Random Access Files - Command Line Arguments.

Outcome:

- Develop simple applications using sequential and random-access files.

Pedagogy:(Teaching Methods):

Unit	Hours	Mode of Pedagogy
I	18 Hours	Chalk & Talk
II	18 Hours	Chalk & Talk
III	18 Hours	Chalk & Talk
IV	18 Hours	PPT
V	18 Hours	PPT

Text Books :

1. **Programming in ANSI C**- E. Balagurusamy. 8th Edition, McGraw Hill Education (India) Pvt. Ltd., 2019.

   Unit 1 - Chapter 1, 2, 3,5,6,7.

   Unit II - Chapter 8, 9.

   Unit III - Chapter 8, 9.

   Unit IV - Chapter 11.

   Unit V - Chapter 13.

Reference Books:

1. **Let us C**: Y.P. Kanetkar, Bpb publication, 15th edition, 2016.

2. **Schaum's Outline of Programming with C**, Byron S. Gottfried, 3rd edition, McGraw Hill Professional, 2017.

3. **Programming using C**, Pandiaraja, Cijay Nicholas publications, 2005.

E-Resources:

1. http://www.freebookcentre.net/Language/Free-C-Books-Download.html.

2. https://www.guru99.com/best-c-books.html.

3. https://www.cprogramming.com/tutorial.html.

Name of the Course Designer:

1. Dr.S.Nagarajan.

2. Prof.M.P.Rekha.

Paper-No: Core II

PROGRAMMING IN C - LAB

Semester: **I**   Subject Code:

Hours/Week: **4**   Total Hours/Semester: **60**

Credit: **3**

Objectives:

- This course enables the student to gain knowledge in the basic principles of programming concepts in C and to develop skills for writing program using 'C'.
- It also helps the student to build applications using C concepts and there by improve problem solving ability.

List of Programs:

1. Write a program in C to find Standard Deviation.

2. Write a program in C for Prime Number Checking.

3. Write a program in C for Adam Number Checking.

4. Write a program in C for Perfect Number Checking.

5. Write a program in C to print Pascal triangle.

6. Write a program in C for Matrix Addition and Subtraction using Switch.

7. Write a program in C to find Sum of the Digit.

8. Write a program in C to find Magic Square.

9. Write a program in C to Sort Numbers using Array.

10. Write a program in C for String Functions.

11. Write a program in C for Recursive Function.

12. Write a program in C to Swap values using Function.

13. Write a program in C to find EB Bill Calculation.

14. Write a program in C to find Mark Sheet Preparation.

15. Write a program in C to find Factorial of a number.

16. Write a program in C to find NCR value using function.

17. Write a program in C for Student Details using Pointers.

18. Write a program in C for Employee Details using Structure.

19. Write a program in C for File Creation.

20. Write a program in C to read and Write Characters in a file.

Outcome:

- Understand the basic concept of C Programming, and its different modules.
- Evaluate constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
- Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
- Design and develop the concept of Strings.
- Demonstrate the file, file modes and command line arguments.

Pedagogy:(Teaching Methods):

No.of. Programs	Hours	Mode Pedagogy
1 to 4	12 Hours	System
5 to 8	12 Hours	System
9 to 12	12 Hours	System
13 to 16	12 Hours	System
17 to 20	12 Hours	System

E-Resources:

1. http://www.cprogramming.com/cgi-bin/source/source.cgi.
2. https://www.hotscripts.com/category/c/scripts-programs/.
3. https://www.C programming Exercises, Practice, Solution - w3resource.

Name of the Course Designer:

1. Dr.S.Nagarajan.
2. Prof.M.P.Rekha.

Paper-No: Allied I

DISCRETE MATHEMATICS

Semester: **I**   Subject Code:

Hours/Week: **5**   Total Hours/Semester: **75**

Credit:**5**

Objectives:

- The course objective is to provide students with an overview of discrete mathematics.
- Students will learn about topics such as logic and proofs, sets and functions, probability, recursion, graph theory, matrices, Boolean algebra and other important discrete maths concepts.

Unit: I

     Set Theory: Introduction – Sets – Notation and Description of Sets – Subsets – Venn - Euler Diagram –Operation on Sets – Properties of Set Operation – Verification of The Basic Laws of Algebra by Venn Diagram – The Principle of Duality.

Outcome:

• Understand sets and perform operations and algebra on sets.

Unit: II

     Logic: Introduction – TF Statement– Connectives – Atomic and Compound Statement – Well Formed Formula – Truth Table of Formula – Tautology – Tautology Implication and Equivalence of Formula – Replacement Process.

Outcome:

- Analyze logical propositions via truth tables.
- Ability to apply mathematical logic to solve problems.

Unit: III

     Matrix Algebra: Introduction-Matrix Operations-Inverse of A Square Matrix-Elementary Operations and Rank of a Matrix- Simultaneous Equations-Eigen Values and Eigen Vectors.

Outcome:

- Prove mathematical theorems using mathematical induction.

Unit: IV

Lattices: Some Properties of Lattices – New Lattice – Modular and Distributive Lattices – Boolean Algebra.

Outcome:

- Determine properties of relations, identify equivalence and partial order relations, sketch relations.

Unit:V

Graph Theory: Basic Concepts - Matrix Representation of Graphs - Spanning Tree - Shortest Path Problems - Directed Tree - Binary Tree.

Outcome:

- Able to model and solve real world problems using graphs and trees.

Pedagogy:(Teaching Methods):

Unit	Hours	Mode Pedagogy
I	15 Hours	Chalk & Talk
II	15 Hours	Chalk & Talk
III	15 Hours	Chalk & Talk
IV	15 Hours	Chalk & Talk
V	15 Hours	Chalk & Talk

Text Books:

Discrete Mathematics – M. Venkataraman, N. Sridharan and N. Chandrasekaran – The National Publishing Company, May 2009.

Unit I-Chapter 1, Section 1 to 9.

Unit II-Chapter 9, Section 1 to 9.

Unit III-Chapter 6, Section 1 to 5, 7.

Unit IV-Chapter 10, Section 1 to 5.

Unit V- Chapter 11, Section 1 to 6.

Reference Books:

1. **Discrete Mathematics and its Applications** – Kenneth H. Rosen.

2. **Invitation to Graph Theory** – S. Arumugam and S. Ramachandran.

3. **Discrete Mathematics an Open Introduction –** Oscar Levin.

E-Resources:

1. http://www.degruyter.com/journal/key/DMA/html

2. http://cs.stackexchange.com/questions/2404/online-learning-resourses-fordiscrete-mathematics.

3. Free Discrete Mathematics Books Download | eBooks Online (freebookcentre.net)

Name of the Course Designer:

1. Prof.A.G.Gokulsankar.
2. Dr.M.Karthigaiveni.

Paper-No: Core III

PROGRAMMING IN JAVA

Semester: **II**   Subject Code:

Hours/Week: **6**   Total Hours/Semester: **90**

Credit:**3**

Objectives:

- The objective of this course is to train the students to build software development skills using Java programming concepts in real world applications.

- On completion of this course the student will be able to create interactive website.

Unit: I

Introduction: Object Oriented Paradigm – Basic Concepts of Object-Oriented Paradigm Benefits of Oops – Application of Oops – Java Evolution: Java History -Java Features- How Java Differs from C And C++ - Java and Internet – Java And World Wide Web – Web Browser– Hardware and Software Requirements – Java Environment. Overview Of Java Language: Java Program Structure – Java Tokens – Java Statements –Implementing A Java Program – Java Virtual Machine – Command Line Argument – Constants – Variables – Data Types – Declaration of Variables – Scope of Variables.

Outcome:

- Obtain basic knowledge on the principles of object-oriented programming.

- Understand Java evaluation and implementation overview of java.

Unit: II

Decision Making and Branching: Decision Making with If Statement – Simple If Statement – If…Else Statement – Nesting Of – If…Else Statement – Else If Ladder – Switch Statement -? Operator – Decision Making and Looping: While Statement –Do Statement – For Statement – Jumps in Loops.

Classes, Objects and Methods: Defining A Class – Method Declaration - Creating Objects – Accessing Class Members - Constructors–Method Overloading- Static Member – Nesting A Methods –Inheritance – Overriding Methods – Final Variables and Methods – Final Classes- Final Methods – Abstract Methods & Classes - Visibility Control.

Outcome:

- Understand classes and objects, constructor, method overloading, static function concepts and develop programs.

Unit: III

　　Arrays, Strings and Vectors: One Dimensional Array – Creating an Array –Two-Dimensional Array – Strings – Vectors – Wrapped Classes – Enumerated Types.

　　Interface: Defining Interface – Extending Interface – Implementing Interface – Accessing Interface Variables.

Outcome:

- Able to understand array strings and vectors, interface concept instead of multiple inheritances.

Unit: IV

　　Packages: Java API Packages- Using System Packages- Creating Packages- Accessing Packages-Adding Class to A Packages.

　　Multithreaded Programming: Creating Threads – Extending Thread Class – Stopping and Blocking a Thread- Life Cycle of Thread – Using Thread Methods – Thread Exception – Thread Priority – Synchronization – Implementing Runnable Interface.

　　Managing Error and Exceptions: Types of Errors – Exception – Multiple Catch Statement – Using Finally Statement – Throwing Our Own Exceptions.

Outcome:

- Acquire knowledge to create package, identify and fix errors in the code and achieve faster execution of code by multithreaded programming.

Unit: V

　　Applet Programming: Introduction-How Applet Differs from Applications – Preparing to Write Applets – Building Applet Code – Applet Life Cycle – Creating an Executable Applet-Applet Tag – Adding Applet to HTML File – Running the Applet – More About Applet – Passing Parameters to Applet – Aligning the Display – More About HTML Tags.

Graphics Programming: Graphics Class –Lines and Rectangles – Circles and Ellipses-Drawing Arcs – Drawing Polygons – Managing I/O Files in Java: Concept of Streams – Stream Classes – Byte Stream Classes – Character Stream Classes.

Outcome:

- Able to perform applet programming designing HTML, graphic programming.

Pedagogy:(Teaching Methods):

Unit	Hours	Mode Pedagogy
I	18 Hours	Chalk & Talk
II	18 Hours	Chalk & Talk
III	18 Hours	Chalk & Talk
IV	18 Hours	PPT
V	18 Hours	PPT

Text Book:

Programming with Java-E. Balagurusamy, Tata McGraw-Hill Publishing Company, New Delhi, 3rd Edition.

Unit I – Chapter 1, 2, 3, 4.

Unit II – Chapter 6, 7, 8.

Unit III – Chapter 9, 10.

Unit IV – Chapter 11, 12, 13.

Unit V – Chapter 14, 15.

Reference Books:

1. **Object Oriented Programming Through JAVA** - P. Radha Krishna, University Press, 2007.

2. **The Complete Reference Java2 -** Herbert Schildt, Tata McGraw Hill, Fifth Edition, 2002.

3. **The Java Language Specification –** Java SE 8th Edition, James J. Gosling, Bill Joy, Jr. Steele, Guy L., Gilad Bracha, Alex Buckley, Guy L. Steele Jr.

E-Resources:

1. http://www.oreillynet.com/pub/feed/7?format=rss2

2. http://developers.sun.com/rss/java.xml

3. http://www.ibm.com/developerworks/views/java/rss/libraryview.jsp

Name of the Course Designer:

1. Prof.M.P.Rekha.

2. Prof.R.Siddthan.

Paper-No: Core IV

PROGRAMMING IN JAVA- LAB

Semester: **II**   Subject Code:

Hours/Week: **4**   Total Hours/Semester: **60**

Credit:**3**

Objectives:

- The aim of this course is to enable the student to understand the fundamental techniques of java.
- It also helps them to use advanced concepts of java to build an application on their own.

List of Programs:

1. Calculator Program in Java.
2. Factorial Program using Recursion.
3. Fibonacci Series Program.
4. Palindrome Program in Java.
5. Permutation and Combination Program.
6. Pattern Programs in Java.
7. String Reverse Program in Java.
8. Mirror Inverse Program in Java.
9. Binary Search Program in Java.
10. HeapSort Program in Java.
11. Removing Elements from Array List.
12. HashMap Program in Java.
13. Circular LinkedList Program in Java.
14. Java DataBase Connectivity Program.
15. Transpose of a Matrix Program.
16. How to display clock using Applet?
17. How to create different shapes using Applet?
18. How to fill colors in shapes using Applet?
19. How to create an event listener in Applet?
20. How to display image using Applet?

Outcome:

- Develop simple java programs to demonstrate OOPs concepts.

- Construct programs using constructor, method overloading and static function.

- Code, debug and execute a Java program to solve the given problems.

- Develop packages and understand how to fix errors using exception handling.

- Construct window-based applications using Applet and achieve database connectivity using JDBC.

Pedagogy:(Teaching Methods):

No.of. Programs	Hours	Mode Pedagogy
1 to 4	12 Hours	System
5 to 8	12 Hours	System
9 to 12	12 Hours	System
13 to 16	12 Hours	System
17 to 20	12 Hours	System

E-Resources:

1. Java Programs for Practice - Simple Java Programs for Beginners (edureka.co).

2. Java Applets - Programming Examples (tutorialspoint.com).

3. org.eclipse.emf. ecore. EObject.eResource java code examples | Tabnine.

Name of the Course Designer:

1. Prof.M.P.Rekha.

2. Prof.R.Siddthan.

Paper-No: Allied II

STATISTICS

Semester: **I**   Subject Code:

Hours/Week: **5**   Total Hours/Semester: **75**

Credit:**5**

Objectives:

- The objective of the course is to enable the students to understand the theoretical background of statistics as a student.
- The course essentially deals with the probability distribution theory which is the basis of statistics as a student of Computer Applications.
- The topics covered includes Correlation and Regression and curve fitting. It also helps them to use advanced concepts of java to build an application on their own.

Unit: I

   Introduction: Meaning and Definition of Statistics - Importance Functions, Limitations - Measure of Statistics, Statistical Survey and Collection of Data-Sampling and Sampling Design-Classification-Tabulation-Diagrams-Graphic Representation.

Outcome:

- Understand the have the basic knowledge on data collection and various statistical elementary tools.

Unit: II

   Curve Fitting: Principles of Least Squares – Fitting Straight Line. A Second-Degree Parabola – Fitting Curves of The Exponent Form.

Outcome:

- Understand relationship between one or more predictors (independent variables) and a response variable (dependent variable), with the goal of defining a "best fit" model of the relationship.

Unit: III

   Measures of Central Tendency: Mean, Median Quartiles, Mode, Geometric Mean and Harmonic Mean - Weighted Average - Measure of Dispersion – Range - Quartile Deviation - Mean Deviation - Standard Deviation - Lorenz Curve - Co-Efficient of Variation.

Outcome:

* Analyze statistical data using measures of central tendency, dispersion and location.

Unit: IV

Correlation: Correlation Analysis-Grouped and Ungrouped Data-Karl Pearson's Co-Efficient of Correlation-Rank Correlation Co-Efficient and Co-Efficient of Concurrent Deviation-Linear Regression Analysis-Multiple Regression.

Outcome:

* Calculate and interpret the correlation between two variables.
* Calculate the simple linear regression equation for a set of data.

Unit: V

Index Numbers: Aggregate-Average of Price Relative-Weighted Index Numbers-Weighted Average of Price Relative- Cost of Living Index Number-Conversion of CBI To FBI.

Outcome:

* Understand the notation and formulae concerning the use and construction of index numbers.

Pedagogy:(Teaching Methods):

Unit	Hours	Mode Pedagogy
I	15 Hours	Chalk & Talk
II	15 Hours	Chalk & Talk
III	15 Hours	Chalk & Talk
IV	15 Hours	Chalk & Talk
V	15 Hours	Chalk & Talk

Text Books:

1. **Business Statistics** – R.S.N. Pillai & Bagavathi S. Chand & Co., New Delhi.

Unit I - Chapter 1, 2, 3, 4, 5, 6, 7, 8.

Unit III - Chapter 9.

Unit IV - Chapter 12, 13.

Unit V - Chapter 14.

2. **Statistics** - Arumugam & Isaac, New Gamma Publishing House, Palayamkottai.

Unit II - Chapter 5.

Reference Books:

1. **Statistics** - S.P. Gupta, S. Chand & Sons.

2. **Introduction to Mathematical Statistics** - Robert V. Hogg and Allen T. Craig, Collier Macmillan International Edition.

3. **Statistics –** 4th edition, David Freedman, Robert Pisani, Roger Purves.

E-Resources:

1. http://www.britannica.com/science/statistics.

2. http://statisticsbyjim.com/regression/curve-fitting-linear-nonlinear-regression/

3. http://www. vedantu.com/commerce/index-numbers

Name of the Course Designer:

1. Prof.A.G.Gokulsankar.

2. Prof.R.Siddthan.