CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (III Cycle) with 'A' Grade by NAAC

ISO 9001:2015 Certified

ANNAMALAI NAGAR, TIRUCHIRAPPALLI – 620 018.

DEPARTMENT OF COMPUTER APPLICATIONS

BACHELOR OF COMPUTER APPLICATIONS

SYLLABUS

2022 -2023 and Onwards

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
DEPARTMENT OF COMPUTER APPLICATIONS

VISION

- ❖ To produce globally competent computer professionals by providing high quality education and also focus on developing the skills of technical competency.
- ❖ To make an incorporated framework that meets the higher instructive necessities of the community.
- ❖ To prepare the students for technical training with revolutionary vision so they can create employment opportunities for themselves as well as for others.

MISSION

- ❖ To produce a quality learning environment that helps students to enhance problem solving skills and practical knowledge.
- ❖ To provide technical education to the students through well-equipped labs.
- ❖ Giving personal attention to slow learners consequently, allowing them to cope up with other wards.
- ❖ To impart the professional and communication skills training to the students to get better placement.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Statements
PEO1	**LEARNING ENVIRONMENT** To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
PEO2	**ACADEMIC EXCELLENCE** To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
PEO3	**EMPLOYABILITY** To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
PEO4	**PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY** To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
PEO5	**GREEN SUSTAINABILITY** To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

PROGRAMME OUTCOMES for B.Sc Computer Science,

B.Sc Computer Science with Cognitive Systems , BCA and

B.Sc Information Technology PROGRAMME

PO NO.	On completion of B. Sc Computer Science / B. Sc Computer Science with Cognitive Systems / BCA/ B. Sc Information Technology Programme, the students will be able to
PO 1	**ACADEMIC SKILLS & SOCIAL RESPONSIBILITY** Apply Computing, Mathematical and Scientific Knowledge in Various disciplines by understanding the concerns of the society.
PO 2	**CRITICAL THINKING AND INNOVATIVE PROGRESS** Design the software applications with varying intricacies using programming languages for innovative learning in techno world to meet the changing demands.
PO 3	**PERSONALITY DEVELOPMENT** Perceive Leadership skills to accomplish a common goal with effective communication and understanding of professional, ethical, and social responsibilities.
PO 4	**LIFELONG LEARNING** Identify resources for professional development and apply the skills and tools necessary for computing practice to gain real life experiences.
PO 5	**CREATIVITY AND HOLISTIC APPROACH** Create a scientific temperament and novelties of ideas to support research and development in Computer Science to uphold scientific integrity and objectivity.

PROGRAMME SPECIFIC OUTCOMES FOR BCA

PSO NO.	The students of Bachelor of Computer Applications will be able to	POs Addressed
PSO 1	Understand the concepts of logical and critical thinking with adequate practical skills.	PO1 PO2 PO4 PO5
PSO 2	Adopt necessary technical, scientific, managerial and financial knowledge to be employable or purse higher education.	PO1 PO2 PO4
PSO 3	Apply neoteric technology in various domains and evaluate the method of implementing it.	PO1 PO2 PO4
PSO 4	Design and create innovative ideas that meet the requirements of an entrepreneur and software industry.	PO1 PO2 PO4 PO5
PSO 5	Explore the ethical values, sustainability and productivity.	PO3 PO4 PO5

Cauvery College for Women (Autonomous), Trichy
Bachelor of Computer Applications

(For the candidates admitted from the Academic year 2022-2023 and onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Hrs.	Int.	Ext.	Total
I	I	Language Course-I (LC)	Ikkala Ilakiyam- I	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course- I(ELC)	Functional English for Effective Communication -I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	Programming in C	22UCA1CC1	5	5	3	25	75	100
		Core Practical - I (CP)	C Programming – Practical	22UCA1CC1P	3	3	3	40	60	100
		First Allied I	Essential Mathematics	22UCA1AC1	4	3	3	25	75	100
		First Allied II	Numerical Analysis and Statistics	22UCA1AC2	4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course-I (AECC)	UGC Jeevan Kaushal -Universal Human Values	22UGVE	2	2	-	100		100
					30	22				700

Semester I	Internal Mark: 25		External Mark: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22UCS1CC1/ 22UCA1CC1/ 22UIT1CC1	PROGRAMMING IN C	CORE	5	5

Course Objectives

- To understand the basics of C language
- To get the deep knowledge of programming using C language
- To develop logics which will help them to create programs and applications in C
- Enhance skill on problem solving by constructing algorithms

Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Define the basic concepts in C Language.	K1 to K2
CO2	Recognize and illustrate the program structure, and syntax of C programming.	K1 to K3
CO3	Explain and apply operators, decision making and looping statements in C programming.	K2 to K4
CO4	Recognize and implement arrays, functions, structure, union and pointers in C programming.	K2 to K4
CO5	Apply and analyze various problems using C features.	K3 to K5

Mapping of CO with PO and PSO

COs\ PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	2	2	2	3	2
CO2	3	3	3	2	2	3	3	2	3	2
CO3	3	3	3	2	2	3	3	2	3	3
CO4	3	3	3	2	1	2	2	2	3	3
CO5	3	3	3	3	1	3	3	2	2	3

"1" – Slight (Low) Correlation   "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation   "-" indicates there is no correlation.

Syllabus

UNIT I **(15 Hours)**

Developing a program in C: Algorithm-Pseudocode-Flowchart- Planning a C program- Writing a C program- Compile and Run a C Program- **Overview of C:** Structure of C program – Character set- Tokens – Data types – Variables – Declaration of variables - symbolic constant – Operators and Expressions.

UNIT II **(15 Hours)**

Managing Input and Output Operations: Reading and Writing a character - Formatted Input and Output. **Decision Making and Branching:** If, Switch, The ?: operator - The GoTo Instruction – **Decision Making and Looping:** Introduction – While, DO, For Statements – Jumps in Loops.

UNIT III **(15 Hours)**

Array: One dimensional array – Two and multidimensional array – Character array – String functions – **User-Defined Functions:** Need for User - Defined Functions – A Multi-Function Program- Elements of User - Defined Functions- Definition of Functions – Return values and Their Types- Function Calls- Function Declaration- Category of Functions – Nesting of Functions - Recursion - Storage Class-The scope and lifetime of variables in functions.

UNIT IV **(15 Hours)**

Structures and Unions: Structure definition – Structure Initialization – Array of structure – Array within structure –Structure within Structure-Union– **Pointers:** Understanding pointers - Accessing the address of a variable - Declaring and Initializing pointers - Accessing a variable through its pointers - Pointer Expressions - Pointers and Arrays - Pointers and Character strings.

UNIT V **(15 Hours)**

File Management: Defining and Opening File –Closing a File – I/O operations on Files – error handling during I/O operations – Random Access to Files- Command Line Arguments.

UNIT VI - **Self Study for Enrichment**   **(Not to be included for External Examination)**

Develop algorithms for real time scenario, Area calculations, Conversion programs, swapping numbers (with and without using temporary variable).

Programs for checking eligibility, Triangle formation, Sum of numbers, sum of series, Array manipulations (Sorting, searching, insert, delete and merging), String handling programs, Dynamic memory management using pointers, Employee pay bill preparation using Files.

Textbook

1. Balagurusamy. E. (2017). *Programming in ANSI C*. 7thEdition, Mc Graw Hill Education New Delhi.

2. Byron Gottfried. (2018). *Programming with C*. 4th Edition, Tata McGraw Hill.

References

1. Yashavant Kanetkar. (2020). Let Us C. 16thEdition, BPB Publications, New Delhi.

2. Ashok N. Kamthane, Amit Ashok Kamthane. (2015). Programming in C. 3rd Edition, Pearson India Education Services Pvt. Ltd.

Web References

1. https://www.learn-c.org/
2. https://www.cprogramming.com/
3. https://www.tutorialspoint.com/cprogramming/index.htm

Pedagogy

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

Course Designers

1. Dr. M. Anandhi
2. Ms. R. Sridevi

Semester I	Internal Mark: 40			External Mark: 60	
COURSE CODE	COURSE TITLE		CATEGORY	Hrs/Week	CREDITS
22UCA1CC1P	C PROGRAMMING - PRACTICAL		CORE	3	3

Course Objectives

● To introduce students to the basic knowledge of programming fundamentals of C language.

● To impart writing skill of C programming to the students and solving problems.

● To impart the concepts like looping, array, functions, pointers and structure.

Course Outcome and Cognitive Level Mapping

On successful completion of the course, students will be able to

CO NUMBER	CO STATEMENT	COGNITIVE LEVEL
CO1	Identify the logic for a given problem	K1,K2
CO2	Recognize the syntax and construction of C programming code	K1,K2
CO3	Apply the steps involved in compiling, linking and debugging C code	K3,K4
CO4	Analyze the concepts of iteration or looping, branching, array, structure, union and pointers	K4
CO5	Create C programs using all the concepts that have been covered in the theory course	K4

Mapping of CO with PO and PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	2	2
CO3	3	3	3	3	3	3	3	3	2	1
CO4	3	3	3	2	2	3	3	2	2	1
CO5	3	3	3	3	2	3	3	3	2	2

"1" – Slight (Low) Correlation   "2" – Moderate (Medium) Correlation

"3" – Substantial (High) Correlation   "-" indicates there is no correlation.

List of Practicals

1. Simple Programs
   a. Create a C program to display "This is my first C Program"
   b. Create a C program to add two numbers and display its sum
   c. Create C program to evaluate each of the following equations.
      (i) $E = MC^2$.   (ii) $S = ut + 1/2a$
2. Selection Structures
   a. Create a C Program to Check Whether a Number is Prime or not
   b. Create a C program to swap values of two variables with and without using third variable
   c. Create a C program to compute grade of students using if else adder. The grades are assigned as followed:

Marks	Grade
marks<50	F
$50 \leq$ marks< 60	C
$60 \leq$ marks<70	B
$70 \leq$ marks<80	B+
$80 \leq$ marks<90	A
$90 \leq$ mars$\leq$ 100	A+

3. Iterative Structures
   a. Create a C program to print N Natural numbers
   b. Create a C program to reverse a given integer
4. Arrays
   a. Create a C program to find the largest and smallest element in Array
   b. Create a C program to find the addition of two matrices
5. Function
   a. Create a C program to calculate factorial of a number using recursion
   b. Create a C program to find power of a number using recursion
6. Pointers
   a. Create a C program to find the length of string using pointer
   b. Create a C program to copy one string to another using pointer
7. Structures
   a. Create a C program to read and print Student's Details using Structure
8. Files
   a. Create a C Program to print the strings using command Line Arguments

Web References

1. https://www.programiz.com/c-programming/examples
2. https://beginnersbook.com/2015/02/simple-c-programs/
3. https://www.tutorialgateway.org/c-programming-examples/
4. https://www.studytonight.com/c/programs/

Pedagogy

Power Point Presentations, Demonstrations, Seminars and Practical Sessions.

Course Designer

Ms. V.Infine Sinduja, Assistant Professor, Department of Computer Applications.

FIRST ALLIED COURSE –I (AC)

ESSENTIAL MATHEMATICS

(2022-2023 Onwards)

Semester I	Internal Marks:25		External Marks:75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**Hrs/Week**	**CREDITS**
22UCS1AC1/ 22UCA1AC1/ 22UIT1AC1	**ESSENTIAL MATHEMATICS**	**ALLIED**	**4**	**3**

Course Objective

- **Apply** the basic concepts of Differentiation, Integration and their applications.
- **Compute** mathematical quantities using ordinary and partial differential equations.
- **Explore** fundamental concepts in graph theory.

Course Outcomes

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Acquire the knowledge of solving problem in Matrices.	**K4**
CO2	Determine the solutions of ordinary and partial differential equations.	**K4**
CO3	Evaluate the solution of a given problem using differential equations.	**K5**
CO4	Examine the various techniques of integration and apply them in definite integrals.	**K4**
CO5	Classify the characteristics of various graphs and its applications.	**K4**

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	3	3	3	2	3
CO2	3	2	3	3	3	3	3	3	3	2
CO3	3	2	3	3	3	3	3	3	2	2
CO4	3	2	2	3	3	3	3	3	3	2
CO5	3	2	3	3	3	3	3	3	2	2

"1" – Slight (Low) Correlation   "2" – Moderate (Medium) Correlation

"3" – Substantial (High) Correlation   "-" indicates there is no correlation.

Syllabus

UNIT I   (12 HOURS)

Matrices:

Matrix – Special types of matrices – Scalar multiplication of a matrix – Equality of matrices – Addition of matrices – Subtraction – Multiplication of Matrices – Inverse matrix– Relation between adjoint and inverse matrices – Solution of simultaneous equations – Rank of a matrix – A system of m homogeneous linear equations in n unknowns – System of non-homogeneous linear equations – Eigen values and Eigenvectors – Similar matrices – Cayley-Hamilton Theorem (proof not needed) – Simple applications only.

UNIT II   (12 HOURS)

Differentiation:

Maxima and Minima (Problems Only) – Points of inflexion.

Partial differentiation:

Functions of function rule – Total Differential Coefficient – A Special case – Implicit Functions – Homogeneous functions – Euler's Theorem (proof not needed) – Simple problems only.

UNIT III   (12 HOURS)

Integration:

Integration of Rational algebraic functions – Rule (a) – Rule (b): Type i: $\int \frac{dx}{ax^2+bx+c}$, Type ii: $\int \frac{lx+m}{ax^2+bx+c}\, dx$ – Integration of Irrational functions : Case (ii) Integration of the form $\int \frac{px+q}{\sqrt{ax^2+bx+c}}$ – Type $\int \frac{dx}{a+b\cos x}$ – Properties of definite integrals.

UNIT IV   (12 HOURS)

Differential Equations:

Linear Differential Equation with constant coefficients – The Operators D and D^{-1} – Particular Integral – Special methods of finding P.I.: X is of the form (a) $e^{\alpha x}$ (b) $\cos\alpha x$ or $\sin\alpha x$, where α is a constant (c) x^m (a power of x), m being a positive integer (d) $e^{ax}V$, where V is any function of x.

UNIT V   **(12 HOURS)**

Graph Theory:

Introduction – Definition of Graphs – Applications of Graphs – Finite and infinite graphs – Incidence and Degree – Isolated Vertex, Pendant Vertex, and Null Graph.

Path and Circuits:

Isomorphism – Subgraphs – Walks, Paths, and Circuits – Connected Graphs, Disconnected Graphs, and Components – Euler graphs.

UNIT VI

Self-Study for Enrichment: (Not to be included for External Examination)

Symmetric matrix – Skew symmetric matrix – Hermitian and skew Hermitian matrices Concavity and Convexity– Integration by parts – Linear equation – Hamiltonian Paths and Circuits.

Text Books

1. T.K.Manicavachagom Pillay, T.Natarajan, K.S.Ganapathy.(2015). *Algebra, Volume II*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.

2. S.Narayanan, T.K.Manicavachagom Pillay.(2015*).Calculus,Volume I*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.

3. S.Narayanan, T.K.Manicavachagom Pillay.(2015*).Calculus,Volume II*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.

4. S.Narayanan, T.K.Manicavachagom Pillay.(2015*).Calculus,Volume III*. S.Viswanathan (Printers & Publishers) Pvt., Ltd.

5. Narsingh Deo. (2003). *Graph Theory with applications to Engineering and Computer*. Prentice Hall of India Private Limited

UNIT-I   Chapter 2: Section 1 to 5, 7, 8, 10 to 16[1]

UNIT-II   Chapter V: Section 1.1 to 1.5[2]

              Chapter VIII: Section 1.2 to 1.6[2]

UNIT-III   Chapter 1: Section 7.1 to 7.3, 8 (CASE II), 9, 11[3]

UNIT-IV   Chapter 2: Section 1 to 4[4]

UNIT-V   Chapter 1: Section 1.1 to 1.5[5]

Chapter 2: Section 2.1, 2.2, 2.4 to 2.6[5]

Reference Books

1. A.Singaravelu. (2003). *Allied Mathematics*. A.R.Publications

2. P.R.Vittal. (2014). *Allied Mathematics*. Margham Publications, Chennai.

3. S.Arumugam and S.Ramachandran.(2006*). Invitation to Graph Theory*. Sci Tech Publications (India) Pvt Ltd., Chennai

Weblinks

1. https://youtu.be/rowWM-MijXU
2. https://youtu.be/TQvxWaQnrqI
3. https://youtu.be/pvLj1s7SOtk
4. https://youtu.be/Gxr3AT4NY_Q
5. https://youtu.be/xlbbefbYLzg
6. https://youtu.be/b0RJkIBhfEM
7. https://youtu.be/s5KZw1EpBEo

Pedagogy

Assignment, Seminar, Lecture, Quiz, Group discussion, Brain storming, e-content.

Course Designers

1. Dr. V. Geetha
2. Dr. S. Sasikala

FIRST ALLIED COURSE-II (AC)

NUMERICAL ANALYSIS AND STATISTICS

(2022-2023 Onwards)

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UCS1AC2/ 22UCA1AC2/ 22UIT1AC2	NUMERICAL ANALYSIS AND STATISTICS	ALLIED	4	3

Course Objective

- **Understand** the implementation of various methods of Numerical Analysis.
- **Organize** and **summarize** the statistical data.
- **Analyze** and **evaluate** the strengths of the conclusions based on data.

Course Outcomes

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Explain the concept of solving algebraic and Transcendental Equations using Numerical Methods and solving Linear Systems using Gaussian Elimination Method and Iterative Methods and Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, Correlation and Linear Regression.	K2
CO2	Compute Numerical Solution to Ordinary Differential Equations using various methods and Range, Quartile Deviation, Mean Deviation and Standard Deviation.	K3
CO3	Applying Trapezoidal, Simpson's $\frac{1}{3}$ and $\frac{3}{8}$ rules for finding Numerical Integration.	K3
CO4	Compute Finite Differences, Rank Correlation and solution of Algebraic and Transcendental Equations using various methods.	K3
CO5	Determine Interpolation using Newton's and Lagrange's Interpolation formula and Mean, Median, Mode, Mean Deviation, Standard Deviation, Correlation and Regression.	K4

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	2	3	2
CO2	3	3	2	2	2	3	2	3	2	3
CO3	2	3	3	2	2	2	3	3	2	3
CO4	3	2	3	2	2	3	3	2	3	2
CO5	3	3	2	3	3	3	2	2	3	3

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

Syllabus

UNIT I **(12 HOURS)**

Solution of Algebraic & Transcendental Equations:

Introduction – The Bisection Method – The Iteration Method – Newton-Raphson Method (Problems Only)

Interpolation:

Finite Differences: Forward Differences, Backward Differences – Newton's Formulae for Interpolation – Interpolation with unevenly spaced Points: Lagrange's Interpolation formula

UNIT II **(12 HOURS)**

Numerical Integration:

Numerical Integration: Simpson's 1/3-Rule – Simpson's 3/8-Rule (proof not needed).

Linear Systems of Equations:

Solution of Linear Systems–Direct Methods: Gaussian Elimination Method – Solutions of Linear Systems – Iterative Methods (Problems Only)

UNIT III **(12 HOURS)**

Numerical solution of Ordinary Differential Equations:

Introduction – Euler's Method – Modified Euler's Method – Runge-Kutta Methods – Predictor - Corrector Methods : Adams-Moulton Method

UNIT IV   (12 HOURS)

Measures of Central Tendency:

Arithmetic Mean – Median – Mode – Geometric Mean – Harmonic Mean.

Measures of Dispersion:

Mean Deviation – Standard Deviation (Simple Problems Only)

UNIT V   (12 HOURS)

Correlation:

Introduction – Meaning of Correlation – Scatter Diagram – Karl Pearson's co-efficient of Correlation – Rank Correlation: Spearman's Rank Correlation Coefficient (Derivation not needed and Simple Problems Only).

Linear Regression:

Introduction – Linear Regression (Derivation not needed and Simple Problems Only)

UNIT VI

Self-study for Enrichment: (**Not to be included for External Examination**)

The method of False Position & Central Differences - Trapezoidal rule - Solution by Taylor's Series and Milne's Method - Range – Quartile Deviation - Rank Correlation (Repeated Ranks).

Text Books

1. Sastry S. S. (1998). Introductory methods of Numerical Analysis, Third Edition. Prentice Hall of   India Private Limited.
2. Gupta. S.C & Kapoor, V.K (2007). Fundamentals of Mathematical Statistics. Sultan Chand & sons, New Delhi.

Chapters and Sections

UNIT – I	Chapter 2: Sections 2.1 - 2.3(Omit 2.3.1), 2.5(Omit 2.5.1) [1]
	Chapter 3: Sections 3.3 (Omit 3.3.4), 3.6, 3.9(3.9.1only) [1]
UNIT – II	Chapter 5: Sections 5.4(5.4.2 & 5.4.3 only) [1]
	Chapter 6: Sections 6.3(6.3.2 only) & 6.4 [1]
UNIT – III	Chapter 7: Sections 7.1, 7.4- 7.6 (Omit 7.4.1 & 7.6.2) [1]

UNIT – IV   Chapter 2: Sections 2.5 - 2.9, 2.13 (Omit 2.13.1 & 2.13.2) [2]

UNIT –V   Chapter 10: Sections 10.1 - 10.4, 10.7(10.7.1 Only) [2]

             Chapter 11: Sections 11.1 & 11.2 [2]

Reference Books

1. Jain M. K, Iyengar S. R.K. and Jain R.K. (1999). Numerical Analysis Numerical Methods for Scientific and Engineering Computations. New Age International Private Limited.
2. Froberg C.E. (1979). Introduction to Numerical Analysis. II Edition. Addison Wesley

Web Links

1. **https://youtu.be/qCzUXav5Nk**

2. **https://youtu.be/r6MTvrI8SQ4**

3. **https://youtu.be/s05dONL4xAs**

4. **https://youtu.be/XaHFNhHfXwQ**

5. **https://youtu.be/zPG4NjIkCjc**

Pedagogy

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

Course Designers

1. Dr.R.Buvaneswari
2. Ms.A.Gowri Shankari