

CAUVERY COLLEGE FOR WOMEN(AUTONOMOUS)

Nationally Accredited with A+ Grade by NAAC

TIRUCHIRAPPALLI

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE



B.Sc. COMPUTER SCIENCE

SYLLABUS

2026 -2027 and Onwards

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

VISION

To create an ambience for a quality academic erudition which drives technologically adept, innovative and globally competent graduates with ethical values

MISSION

- To have a breadth of knowledge across the subject areas of Computer Science
- To professionally enrich the students for successful career in Academia, Industry and Research
- To promote and inculcate ethics and code of professional practice among students

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,

B.Sc. Information Technology

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 B.Sc. COMPUTER SCIENCE

PSO NO.	The students of B.Sc. Computer Science will be able to	POs Addressed
PSO 1	Apply computing and scientific knowledge to analyze and design efficient, innovative solutions using appropriate algorithms and modern technologies for societal and research-oriented applications.	PO 1 PO 2 PO 5
PSO 2	Develop a strong foundation in programming languages to formulate efficient computational solutions for real-life problems, while engaging in continuous learning and applying modern tools for professional development	PO 1 PO 2 PO 4
PSO 3	Equip the skills to effectively use modern tools and technologies in computer science to meet industry needs, communicate efficiently, and engage in continuous learning for professional development.	PO 3 PO 4
PSO 4	Apply computing knowledge and develop skills in software and hardware to build innovative solutions and pursue productive careers in industry, research, academia, and entrepreneurship	PO 1 PO 4 PO 5
PSO 5	Execute projects using modern tools and technologies, collaborate effectively in teams to achieve common goals, and demonstrate continuous learning with innovative and creative thinking	PO 3 PO 4 PO 5

CIA COMPONENTS

Theory Courses

Component	Marks
CIA- I	07
CIA - II	07
Seminar/ Assignment	05
Attendance	03
Library	03
Innovative Presentations Quiz/Case Study	05
Total	30

Practical Courses

Component	Marks
Observation	05
Record	10
Continuous Performance in Practical	10
Model Practical	15
Total	40

Question Paper Pattern

Question Paper Pattern for Theory Courses

with 70 marks

BSc Degree Examination

Time: 3 Hrs

Max.Marks:75

SECTION – A

Answer ALL the Questions (10X1=10 Marks)

1 to 5 & 7 to 9. Choose the best Answer

6. Assertion & Reasoning (From 3rd Unit)

10. Assertion & Reasoning (From 5th Unit)

Section- B

Answer ALL the Questions (5X2=10 Marks)

11 to 15. Answer in one or Two sentences

Section- C

Answer ALL Questions (5*4=20 Marks)

16 (a) or (b)

17 (a) or (b)

18 (a) or (b)

19 (a) or (b)

20 (a) or (b)

Section- D

Answer any TWO questions (2*10=20 Marks)

21.

22.

23.

24.

Section- E

Compulsory Question (1*10=10 Marks)

25.

SEMESTER I



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE

CHOICE BASED CREDIT SYSTEM-LEARNING OUTCOME

BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(For the candidates admitted from the academic year 2026-2027 and onwards)

Semester	Part	Course	Course Title	Course Code	Inst. Hrs./ week	Credits	Exam			Total
							Hrs.	Marks		
								Int	Ext	
I	I	Ability Enhancement Course – I (AEC - I)	பொதுத்தமிழ் - I	26ULT1	6	3	3	30	70	100
			Hindi Language & Literature -I	26ULH1						
			Basic French-I	26ULF1						
			Sanskrit Prose and Vocabulary	26ULS1						
	II	Ability Enhancement Course – II (AEC - II)	General English -I	26UE1	6	3	3	30	70	100
	III	Core Course – I(CC-I)	Programming in C	26UCS1CC1	5	5	3	30	70	100
		Core Practical - I (CP-I)	Programming in C (P)	26UCS1CP1	3	3	3	40	60	100
		Allied Course- I (AC-I)	Numerical Methods	26UCS1AC1	3	3	3	30	70	100
		Allied Course Practical-I (ACP-I)	Numerical Methods using MATLAB (P)	26UCS1ACP1	3	3	3	40	60	100
	IV	Ability Enhancement Compulsory Course-I (AECC-I)	Value Education	26UGVE	2	2	-	100	-	100
Ability Enhancement Compulsory Course-II (AECC-II)		Cyber Security	26UGCS	2	2	-	100	-	100	
	Total				30	24				800

DEPARTMENT OF B.Sc COMPUTER SCIENCE
CHOICE BASED CREDIT SYSTEM-LEARNING OUTCOME BASED
CURRICULUM FRAMEWORK (CBCS - LOCF)
(For the Candidates admitted from the Academic year 2026-2027 and onwards)

Curriculum Structure
Courses & Credits for UG Science Programmes

Part	Course	No. of Courses	Hours	Credits	Total Credits	Marks
I	Ability Enhancement Course	4	6	12	12	400
II	Ability Enhancement Course	4	6	12	12	400
III	Core (Theory)	8	5/6	8*5=40	105	2900
	Core (Practical)	8	3	8*3=24		
	Project Work	1	5	3		
	Internship	1	-	2		
	Allied Courses	8	4/3	8*3=24		
	DCEC	3	5	3*4=12		
IV	IDC	2	2	2*2=4	20	1100
	SEC	2	2	2*2=4		
	AECC-I -Value Education	1	2	2		
	AECC-II Cyber Security	1	2	2		
	AECC-III- Environmental Science	1	2	2		
	AECC-IV-Innovation and Entrepreneurship	1	2	2		
	AECC-V- Health and Wellness	1	-	1		
	AECC-VI - Introduction to Disaster Management	1	2	2		
	AECC-VII Gender Studies	1	1	1		
V	Extension Activities		-	1	01	-
		48		150	150	4800

The Internal and External marks for theory and practical courses are as follows:

Course	Internal Marks	External Marks
Theory	30	70
Practical	40	60
Project	20	80
Internship	20	80

For Theory courses:

- a) The passing minimum for CIA shall be 40% out of 30 marks (i.e. 12 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 70 marks (i.e. 28 marks)

For Practical courses:

- a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e. 24 marks)

For Project Work:

- a) The passing minimum not less than 40% out of 100 marks

For Internship:

- b) a) The passing minimum not less than 40% in the aggregate.

Semester I	Internal Mark: 30		External Mark: 70	
COURSE CODE	COURSE TITLE	CATEGORY	HOURS/WEEK	CREDITS
26UIT1CC1/ 26UAM1CC1/ 26UCS1CC1	PROGRAMMING IN C	CORE COURSE –I (CC)	5	5

Course Objective

- Introduce fundamentals of structured programming
- Develop logical and problem-solving skills
- Enable students to write efficient C programs

Course Features with Relevance Status

S. No.	Course Features	Relevance Status
1	Course emphasis on Employability/Entrepreneurship/Skill Development	Employability / Skill Development
2	Course integrates cross cutting issues relevant to Professional Ethics/Gender Sensitization / Environment and Sustainability / Human Values / Indian Knowledge System	Professional Ethics/ Sustainability
3	Course relevant to Local/Regional/National/Global needs	Global
4	Course focus on Sustainable Development Goals	SDG 4, 9, 8

Course Outcomes and Cognitive Level Mapping

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

CO Number	Course Outcome	Cognitive Level
CO1	Understand fundamental concepts of C programming including data types, operators, and program structure.	K2
CO2	Apply control structures to develop logical and efficient programs for problem solving.	K3
CO3	Design and implement modular programs using functions and arrays	K4
CO4	Analyze and utilize pointers, structures, and strings for effective memory and data management	K4
CO5	Evaluate and optimize programs using file handling and dynamic memory allocation techniques	K5

Mapping of CO with PO and PSO

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

“1” – Slight (Low) Correlation

“3” – Substantial (High) Correlation

“2” – Moderate (Medium) Correlation

“-” indicates there is no correlation.

Syllabus

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Introduction to Programming languages - History of Programming language – Algorithms - Flow charts - Language Translators - Overview of C: History of C- Importance of C- Basic Structure of C Programs- Executing a C Program- Keywords - Identifiers - Constants, Variables and Data types- Operators and Expressions - Type Conversion - Managing Input and Output Operations	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
II	Decision Making and Branching: Decision making with If, simple IF, IF ELSE, nested IF ELSE, ELSE IF ladder, switch, GOTO statement. Decision Making and Looping: While, Do-While, For, Jumps in loops. Arrays.	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
III	User Defined Functions: Elements of User Defined Functions- Definition of Functions- Return Values and their Types- Function Call - Function Declaration- Categories of Functions- Nesting of Functions-Recursion	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

IV	Character Arrays and Strings - Structures and Unions: Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members- Structure Initialization- Arrays of Structures- Arrays within Structures- Unions- Size of Structures - Type def	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
V	Pointers: Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer- Pointer Arithmetic – Pointer with Array and function – Pointers with structures - File Management in C – Dynamic Memory Allocation -Bit level Programming	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
VI	Self Study for Enrichment (Not included for End Semester Examinations) Developing C Program Guidelines – Common Programming Errors – Program Testing and Debugging- – Graphic Programming Using C		CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

Text Books

1. E. Balaguruswamy, (2019), —Programming in ANSI C, 8th Edition, Tata McGraw Hill Publications.
2. C Programming for beginners (2021). Dr Madhav Bokare and Ms.Nishigandha Kurale Sankalp Publication.
3. Brian W. Kernighan & Dennis M. Ritchie(1998), *The C Programming Language* 2nd Edition, Pearson Education

References

1. Yashavant Kanetkar (2020), *Let Us C*, 16th Edition, BPB Publications
2. Stephen Prata (2015), *C Primer Plus*, 6th Edition, Pearson Education
3. Herbert Schild (2015), *C: The Complete Reference*, 4th Edition, McGraw Hill Education
4. Byron Gottfried (2018), *Programming with C*, 3rd Edition, Schaum's Outline Series, McGraw Hill

Web References

1. <https://www.geeksforgeeks.org/c-programming-language>
2. <https://www.programiz.com/c-programming>
3. <https://www.tutorialspoint.com/cprogramming>
4. <https://www.learn-c.org>
5. <https://www.codecademy.com/learn/learn-c>

Pedagogy

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

Course Designer

Dr. P.Tamilselvi, Associate Professor, Department of Information Technology.

Semester I	Internal Mark: 40		External Mark: 60	
COURSE CODE	COURSE TITLE	CATEGORY	HOURS/WEEK	CREDITS
26UCS1CP1	PROGRAMMING IN C (P)	CORE PRACTICAL- I (CP)	3	3

Course Objectives

- To introduce the fundamental syntax, structure, and logic of the C programming language to build a strong foundation in software development.
- To enable students to design, code, and debug modular programs using control structures, functions, and pointers for efficient problem-solving.
- To foster analytical thinking and teamwork by implementing real-world computational solutions while adhering to professional coding standards.

Course Features with Relevance Status

S. No.	Course Features	Relevance Status
1	Course emphasis on Employability/Entrepreneurship/Skill Development	Employability / Skill Development
2	Course integrates cross cutting issues relevant to Professional Ethics/Gender Sensitization / Environment and Sustainability / Human Values/ Indian Knowledge System	Professional Ethics/ Sustainability
3	Course relevant to Local/Regional/National/Global needs	Global
4	Course focus on Sustainable Development Goals	SDG 4, 9, 8

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	Execute basic C programs using operators, data types, and I/O functions to solve simple mathematical problems.	K3
CO2	Implement logical flow in programs using decision-making statements and loops to analyze algorithmic complexity.	K3
CO3	Develop modular applications using arrays, strings, and functions to manage data effectively.	K3
CO4	Analyze memory management and data structures using pointers and structures to optimize program performance.	K4
CO5	Design, implement, debug, and validate C programs to solve real-world problems with accuracy and reliability.	K5

Mapping with Programme Outcomes

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

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

List of Exercises

Implement the following:

1. Input and Output Statements
2. Operators and Expressions
3. Conditional Branching Statements
4. Looping Statements
5. Arrays
6. User Defined Functions
7. String Handling Functions
8. Structures & Unions
9. Pointers
10. File Handling

Web References

1. <https://www.geeksforgeeks.org/c/c-programming-language/>
2. <https://www.hackerrank.com/domains/c>
3. <https://www.tutorialspoint.com/cprogramming/index.htm>
4. <https://en.cppreference.com/w/c>
5. <https://www.learn-c.org/>

Pedagogy

Learning through Problem Solving and Peer Teaching

Course Designers

1. Dr. R. Sangeetha
2. Ms. N. Agalya

ALLIED COURSE –I (AC-I)**NUMERICAL METHODS****(For B.Sc. Computer Science, Information Technology, Computer Science with Cognitive Systems)****(2026-2027 Onwards)**

Semester I	Internal Marks: 30		External Marks: 70	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
26UCS1AC1/ 26UIT1AC1/ 26UCG1AC1	NUMERICAL METHODS	ALLIED COURSE	3	3

Course Objective

- **Learn** the various topics in Numerical methods.
- **Understand** the fundamentals of algebraic equations, interpolation, numerical differentiation and integration.
- **Develop** skills in solving problems of numerical techniques.

S. No.	Course Features	Relevance Status
1.	Course emphasis on Employability/Entrepreneurship/Skill Development	Employability, Entrepreneurship, Skill Development
2.	Course integrates cross cutting issues relevant to Professional Ethics/Gender sensitization/ Environment and Sustainability/ Human Values /Indian Knowledge System	Professional Ethics
3.	Course relevant to Local/Regional/National/ Global needs	Global need
4.	Course focus on Sustainable Developmental Goals	SDG 4,8,9,12

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	Remember the basic concepts of numerical methods.	K1
CO2	Illustrate the various notions of computational numerical streams	K2
CO3	Apply the different techniques of numerical problems	K3
CO4	Classify the methods of numerical techniques.	K4
CO5	Examine the solutions of numerical problems.	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	2	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	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Solution of Algebraic and Transcendental Equations: Introduction – Bisection Method – The Iteration Method – The Method of False Position – Newton Raphson Method. (Simple Problems Only).	9	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
II	Interpolation: Finite differences – Forward differences – Backward differences – Central differences – Newton's Formulae for interpolation–Interpolation with Unevenly Spaced Points – Lagrange's Interpolation Formula. (Simple Problems Only)	9	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
III	Numerical Differentiation and Integration: Introduction – Numerical Differentiation – Numerical Integration – Trapezoidal Rule – Simpson's 1/3 Rule – Simpson's 3/8 Rule (Simple Problems Only)	9	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
IV	Numerical Linear Algebra: Solution of Linear Systems – Direct Methods – Gauss - Elimination – Gauss -Jordan method. Solution of Linear Systems – Iterative Methods. (Simple Problems Only)	9	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
V	Numerical Solution of Ordinary Differential Equations: Introduction – Solution by Taylor's Series – Euler's Method – Modified Euler's Method – Runge-Kutta Method– Predictor-Corrector Methods – Adams-Moulton Method – Milne's Method(Simple Problems Only)	9	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4
VI	Self-Study for Enrichment (Not included for End Semester Examination) Ramanujan's Method – Bessel's Formula – NewtonCotes Integration Formulae –The QR Method – Picard's Method of Successive Approximations	-	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4

Text Book

Sastry.S.S (2004), Introductory Methods of Numerical Analysis (Third Edition), Prentice Hall of India Private Ltd, New Delhi.

Chapters and Sections

UNIT-I	Chapter 2: Sections: 2.1 – 2.5 (Omit 2.3.1 & 2.5.1)
UNIT II	Chapter 3: Sections: 3.3 : 3.3.1 – 3.3.3, 3.6, 3.9 : 3.9.1
UNIT-III	Chapter 5: Sections: 5.1, 5.2 (only), 5.4 : 5.4.1 – 5.4.3
UNIT-IV	Chapter 6: Sections: 6.3: 6.3.2, 6.4
UNIT-V	Chapter 7: Sections: 7.1,7.2, 7.4: 7.4.2, 7.5,7.6

Reference Books

1. Venkataraman, M.K. (2003). Numerical Methods in Science and Engineering, The National Publishing Company.
2. Iyengar S.R.K, Jain R.K, (2009). Numerical Methods, New Age International Publishers.
3. Kandasamy P, Thilagavathy K & Gunavathi K (2016). Numerical Methods, S. Chand & Company Pvt. Ltd., Ram Nagar, New Delhi.

Web References

1. <https://csw.uobaghdad.edu.iq/wp-content/uploads/sites/30/uploads/computer%20science/Lectures/2nd%20year/NUM%20ANALYSIS.pdf>
2. https://www.youtube.com/watch?v=3j0c_FhOt5U&list=PLU6SqDYcYsfIk1VhXxIYNPFU67ym6gae8
3. https://www.msuniv.ac.in/images/distance%20education/learning%20materials/ug%20pg/ug//bsc_maths/I%20Year%20-%20DJM2C%20-%20Numerical%20Methods.pdf
4. <https://www.ece.mcmaster.ca/~xwu/part6.pdf>
5. <https://www.youtube.com/watch?v=iviiGB5vxLA>
6. <https://www.youtube.com/watch?v=GkitlhUTsX8>
7. https://homepage.math.uiowa.edu/~atkinson/papers/NAODE_Book.pdf

Pedagogy

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment and Smart Classroom.

Course Designer

Ms. P. Sangeetha

ALLIED COURSE PRACTICAL-I (ACP-I)
NUMERICAL METHODS USING MATLAB(P)

(For B.Sc. Computer Science, Information Technology, Computer Science with Cognitive Systems)
 (2026-2027 and Onwards)

Semester I	Internal Marks: 40		External Marks:60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
26UCS1ACP1/ 26UIT1ACP1/ 26UCG1ACP1	NUMERICAL METHODS USING MATLAB(P)	ALLIED COURSE PRACTICAL-I	3	3

Course Objective

- Recognize how different numerical analysis techniques are applied.
- Compile and arrange the numerical information.
- Analyze and assess the data-based findings strengths.

S.No.	Course Features	Reference Status
1.	Course emphasis on Employability/Entrepreneurship/Skill Development.	Employability, Skill Development
2.	Course integrates cross cutting issues relevant to Professional Ethics/Gender Sensitization/Environment and sustainability/Human Values/Indian Knowledge System	Professional Ethics
3.	Course relevant to Local/Regional/National/Global needs	National, Global Need
4.	Course focus on Sustainable Development Goals	Sustainable Development Goal 4,8,9,12

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	Understand the programming skills through numerical methods using MATLAB.	K1, K2
CO2	Solve the problems using various numerical methods using MATLAB.	K2, K3
CO3	Identify the techniques of Numerical Methods	K3
CO4	Analyze the basic commands in MATLAB programming.	K4
CO5	Support the implementation of numerical methods using MATLAB.	K4

Mapping of COs with POs and PSOs

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.

LIST OF PROGRAMS

1. Bisection Method
2. Trapezoidal rule of Integration
3. Simpson's $1/3$ rule of Integration
4. Simpson's $3/8$ Rule of Integration
5. Newton – Raphson method of solving equations
6. Linear Interpolation
7. Linear Regression
8. Gauss Elimination method of solving simultaneous equations
9. Gauss – Seidal method of solving simultaneous equations
10. R-K fourth order method of solving differential equations
11. Euler's Method of solving differential equations
12. Lagrange's method of interpolation

Web References

1. https://www.youtube.com/watch?v=eV_JDYaW9Jo
2. https://www.mathworks.com/help/matlab/data_analysis/linear-regression.html
3. <https://www.codewithc.com/bisection-method-in-matlab/?amp=1>
4. <https://www.geeksforgeeks.org/software-engineering/trapezoidal-numerical-integration-in-matlab/>
5. <https://www.youtube.com/watch?v=tD2mBVjbSo>
6. <https://www.youtube.com/watch?v=zzdCcpqCcJA>
7. <https://www.youtube.com/watch?v=C76p31T-Y5s>
8. <https://www.scribd.com/document/498648310/gauss-elimination-method-using-matlab>
9. <https://lpsa.swarthmore.edu/NumInt/NumIntFourth.html>
10. <https://www.youtube.com/watch?v=9P5J5spULJs>

Pedagogy

Power point presentations, Live Demo, Hands on Training.

Course Designer

Dr. V.Manimozhi