

Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

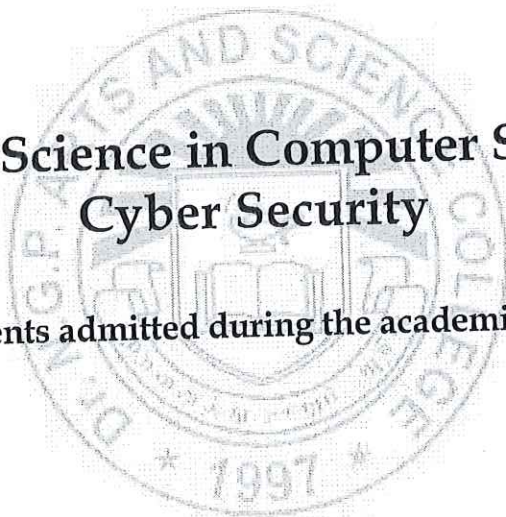
Approved by Government of Tamil Nadu and Accredited by NAAC with 'A++' Grade (3rd Cycle-3.64 CGPA)

Dr. N.G.P. - Kalapatti Road, Coimbatore-641048, Tamil Nadu, India

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Bachelor of Science in Computer Science with Cyber Security

(For the students admitted during the academic year 2026-27)



Dr. N.G.P. ARTS AND SCIENCE COLLEGE (Autonomous)
REGULATIONS 2026-27 for Under Graduate Programme
(Outcome Based Education model with Choice Based Credit System)

Bachelor of Science in Computer Science with Cyber Security
(For the students admitted during the academic year 2026-27)

Programme: B.Sc. Computer Science with Cyber Security.

Eligibility

Candidates for admission to the first year of the **Bachelor of Science (Computer Science with Cyber Security)** Degree Programme shall be required to have passed in the Higher Secondary Examinations conducted by the Government of Tamil Nadu in the relevant subjects or an Examination accepted as equivalent thereto by the Academic Council. Subject to such other conditions as may be prescribed there to are permitted to appear and qualify with any one of the following subjects: Mathematics / Computer Science / Statistics / Business Mathematics and wherever the students have not studied Mathematics, the necessary Mathematics knowledge be imparted through Tutorial/ Bridge Course.

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. To have a strong foundation of computer science principles which will provide a promising professional career in real world industry.
2. To be able to equip themselves in research and development, entrepreneurship, and start-up initiator as an individual or collaborative manner utilizing interpersonal skills.
3. To contribute to society and the cyber security community by participating in outreach programs, creating awareness and educating the public about safe computing practices.

PROGRAMME OUTCOMES

On the successful completion of the program, the following are the expected outcomes.

PO Number	PO Statement
PO1	To have a strong understanding of fundamental concepts of computer science and its related disciplines.
PO2	To develop viable solutions for IT enabled services by applying analytic and programming skills.
PO3	To exhibit the ability in adapting evolving technologies and new problem domains thus fostering creativity and innovation in cyber security discipline.
PO4	To engage in continuous learning, keeping pace with emerging trends, technologies, and threats in the field of cyber security.
PO5	To demonstrate social responsibility through ethics and values and environmental studies related activities in the society.

B.Sc. Computer Science with Cyber Security
Credit Distribution

Part	Subjects	No. of Papers	Credit	Semester No.
I (12 Credits)	Tamil / Hindi / French/Malayalam	4	4 x 3 = 12	I to IV
II (12 Credits)	English	4	4 x 3 = 12	I to IV
III (108 Credits)	Core (Credits 4)	11	11 x 4 = 44	I to VI
	Core (Credits 3)	2	2 x 3 = 6	I to VI
	Core Practical (Credits 5)	2	2 x 5 = 10	III to IV
	Core Practical (Credits 2)	5	5 x 2 = 10	I to VI
	Inter Departmental Course (IDC)	4	4 x 4 = 16	I to IV
	Discipline Specific Elective (DSE)	3	3 x 4 = 12	V & VI
	Skill Enhancement Course (SEC)	4	4 x 2 = 8	III, IV, V&VI
	Industrial Training	1	1 x 2 = 2	V
IV (8 Credits)	Environmental Studies (AECC)	1	2	I
	Basic Tamil/Advanced Tamil/ Human Rights, & Women's Rights (AECC)	1	2	II
	Generic Elective (GE)	1	2	V
	Innovation & IPR/ Innovation, IPR & Entrepreneurship (AECC)	1	2	VI
V (2 Credits)	NSS/NCC/YRC/RRC/Yoga/ Sports/Clubs/Health and Wellness	-	2	I - II
TOTAL CREDITS			142	

CURRICULUM

B.Sc. Computer Science with Cyber Security
A.Y:26-27

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
First Semester												
Part - I												
26TLU1TA	Language - I	Tamil-I	4	1	-	5	60	3	25	75	100	3
26TLU1HA		Hindi-I				5	60					
26TLU1MA		Malayalam-I				5	60					
26TLU1FA		French - I				5	60					
Part - II												
26ELU1EA	Language - II	English-I	4	-	1	5	60	3	25	75	100	3
Part - III												
26AIU1CA	Core - I	Programming in C	4	1	-	5	60	3	25	75	100	4
26CYU1CA	Core -II	Computer Organization and Architecture	4	-	-	4	48	3	25	75	100	4
26CYU1CP	Core Practical - I	Programming in C	-	-	4	4	48	3	40	60	100	2
26MTU1ID	IDC-I	Mathematics for Computing- I	4	1	-	5	60	3	25	75	100	4
Part - IV												
26CEU1AA	AECC-I	Environmental Studies	2	-	-	2	24	-	50	-	50	2
Part - V												
26CYU1XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/ Clubs	-	-	-	-	-	-	50	-	50	1
Total			22	3	5	30	360				700	23

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Second Semester												
Part - I												
26TLU2TA	Language - I	Tamil-II	4	1	-	5	60	3	25	75	100	3
26TLU2HA		Hindi-II				5	60					
26TLU2MA		Malayalam-II				5	60					
26TLU2FA		French - II				5	60					
Part - II												
26ELU2EA	Language - II	English-II	4	-	1	5	60	3	25	75	100	3
Part - III												
26CAU2CA	Core - III	Data Structures	4	1	-	5	60	3	25	75	100	4
26CSU2CA	Core - IV	Python Programming	4	-	-	4	48	3	25	75	100	4
26CYU2CP	Core Practical - II	Python Programming	-	-	4	4	48	3	40	60	100	2
26MTU2ID	IDC-II	Mathematics for Computing - II	4	1	-	5	60	3	25	75	100	4
Part - IV												
26TLU2AA	AECC-II	Basic Tamil	2	-	-	2	24	-	50	-	50	2
26TLU2AB		Advanced Tamil										
26CMU2AA		Human Rights & Women's Rights										
Part - V												
26CYU2XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/ Club/Health and Wellness	-	-	-	-	-	-	50	-	50	1
Total			22	3	5	30	360				700	23

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Third Semester												
Part - I												
26TLU3TA	Language - I	Tamil-III	3	1	-	4	48	3	25	75	100	3
26TLU3HA		Hindi-III				4	48					
26TLU3MA		Malayalam-III				4	48					
26TLU3FA		French - III				4	48					
Part - II												
26ELU3EA	Language - II	English-III	3	1	-	4	48	3	25	75	100	3
Part - III												
26CAU3CA	Core - V	Java Programming	4	-	-	4	48	3	25	75	100	4
26CYU3CA	Core -VI	Principles of Cyber Security	3	-	-	3	36	3	25	75	100	3
26CYU3CM	Core Practical- III	Operating Systems	3	-	4	7	84	3	40	60	100	5
26CYU3SP	SEC Practical-I	Programming in Java	-	-	4	4	48	3	40	60	100	2
26MTU3ID	IDC-III	Discrete Mathematics	4	-	-	4	48	3	25	75	100	4
Total			20	2	8	30	360	-	-	-	700	24

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fourth Semester												
Part - I												
26TLU4TA	Language I	Tamil-IV	3	1	-	4	48	3	25	75	100	3
26TLU4HA		Hindi-IV				4	48					
26TLU4MA		Malayalam-IV				4	48					
26TLU4FA		French - IV				4	48					
Part - II												
26ELU4EA	Language - II	English-IV	3	1	-	4	48	3	25	75	100	3
Part - III												
26CYU4CA	Core -VII	Computer Networks	4	-	-	4	48	3	25	75	100	4
26CYU4CB	Core VIII	Secure Software Engineering	3	-	-	3	36	3	25	75	100	3
26CGU4CM	Core Practical -IV	Database Management Systems	3	-	4	7	84	3	40	60	100	5
26CYU4SP	SEC Practical-II	Network Programming	-	-	4	4	48	3	40	60	100	2
26CRU4IA	IDC -IV	Cyber Law and Ethics	4	-	-	4	48	3	25	75	100	4
Total			20	2	8	30	360				700	24

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fifth Semester												
Part - III												
26CYU5CA	Core - IX	Ethical Hacking	4		-	5	60	3	25	75	100	4
26CYU5CB	Core -X	Cyber Crime Investigation and Digital Forensics	4		-	5	60	3	25	75	100	4
26CYU5CC	Core -XI	Machine Learning	4		-	5	60	3	25	75	100	4
26CYU5CP	Core Practical -V	Digital Forensics Analysis	-	-	4	4	48	3	40	60	100	2
26CYU5CQ	Core Practical -VI	Machine Learning	-	-	4	3	48	3	40	60	100	2
26CYU5SP	SEC Practical-III	Vulnerability Assessment and Penetration Testing	-	-	4	4	48	3	40	60	100	2
26CYU5DA	DSE-I	Network Security and Cryptography	4		-	5	60	3	25	75	100	4
26CYU5DB		Threat Hunting										
26CYU5DC		Block Chain Technology										
26CYU5TA	IT	Industrial Training	-	-	-	-	-	3	40	60	100	2
Part - IV												
	GE		2	-	-	2	24	3	50	-	50	2
Total			18	-	12	30	360				850	26

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Sixth Semester												
Part - III												
26CYU6CA	Core - XII	Web Application Security	4	-	-	4	48	3	25	75	100	4
26CYU6CP	Core Practical - VII	Web Application Security	4	-	-	4	48	3	40	60	100	2
26CYU6SP	SEC Practical - IV	SOC & Threat Monitoring Lab	-	-	4	4	48	3	40	60	100	2
26CYU6CV	Core -XIII	Project and Viva voce	-	-	8	8	96	3	40	60	100	4
26CYU6DA	DSE -II	Cloud Security and Virtualization	4	-	-	4	48	3	25	75	100	4
26CYU6DB		Cyber Threat Intelligence										
26CYU6DC		Big Data Analytics										
26CYU6DD	DSE -III	Internet of Things	4	-	-	4	48	3	25	75	100	4
26CYU6DE		Malware Analysis										
26CYU6DF		Deep Learning										
Part - IV												
26BTU6AA	AECC-III	Innovation, IPR and Entrepreneurs hip	2	-	-	2	24	-	50	-	50	2
Total			18	-	12	30	360				650	22
*Grand Total											4300	142

***Total Credit Should not exceed 142 credits**

DISCIPLINE SPECIFIC ELECTIVE

Students shall select the desired course of their choice in the listed elective course during

Semesters V & VI

Semester V (Elective I)**List of Elective Courses**

S. No.	Course Code	Name of the Course
1.	26CYU5DA	Network Security and Cryptography
2.	26CYU5DB	Threat Hunting
3.	26CYU5DC	Block Chain Technology

Semester VI (Elective II)**List of Elective Courses**

S. No.	Course Code	Name of the Course
1.	26CYU6DA	Cloud Security and Virtualization
2.	26CYU6DB	Cyber Threat Intelligence
3.	26CYU6DC	Big Data Analytics

Semester VI (Elective III)**List of Elective Courses**

S. No.	Course Code	Name of the Course
1.	26CYU6DD	Internet of Things
2.	26CYU6DE	Malware Analysis
3.	26CYU6DF	Deep Learning

GENERIC ELECTIVE COURSES(GE)

The following is the course offered under Generic Elective Course

Semester V (GE)

S. No.	Course Code	Name of the Course
1	26CYU5GA	Basics of Cyber Security

EXTRA CREDIT COURSES

The following are the courses offered under self-study to earn extra credits:

Semester III

S. No.	Course Code	Name of the Course
1	26CYUSSA	Web Essentials
2	26CYUSSB	Digital Marketing


BoS Chairman / HoD
 Dept. of Computer Science with Cyber Security
 Dr. N.G.P. Arts and Science College,
 Coimbatore - 641 048.

B.Sc. Computer Science with Cyber Security (Students admitted during the AY 2026-27)

	Dr.N.G.P. Arts and Science College	
	APPROVED	
06/04/2026		

Semester – I CORE I: PROGRAMMING IN C							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26AIU1CA	PROGRAMMING IN C	CORE	48	12	-	4

Preamble	This course has been designed for students to learn and understand - the C language fundamentals. - the programs using functions, arrays and strings. - the representation and working of pointers, structures and files.
Prerequisite	Knowledge on Logical Thinking

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand the fundamentals of C Language	K2
CO2	Implement decision making using branching and looping.	K3
CO3	Develop programs using arrays and functions	K3
CO4	Analyze the use of Strings and pointers.	K4
CO5	Assess programs using structures and files.	K5

Mapping with Program Outcomes:					
Cos/ POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	M	S	S	M	S
CO3	M	M	S	M	M
CO4	S	M	M	M	S
CO5	M	S	S	M	S

26AIU1CA	PROGRAMMING IN C
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Syllabus

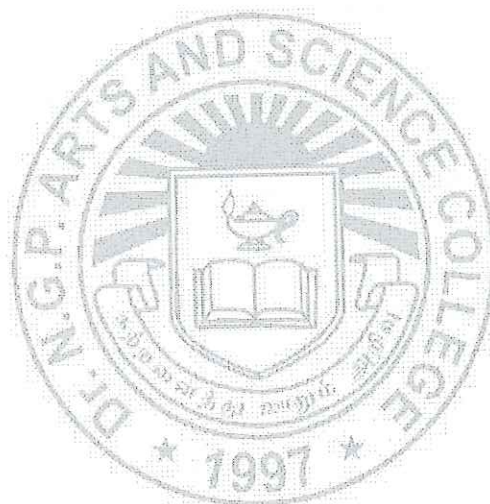
Unit	Content	Hrs	Resources
I	C Programming: Introduction to C - Structure of C program - C Tokens- Character set - Keywords -Data types - Variables - Constants - Input/Output statements - Operators - Type Conversion and Type casting.	12	Text Book/ Reference Books/NPTEL
II	Decision making and Iterative statements: Conditional and Branching Statements: if statement - if-else statements - if-else-if statement - switch statement - Iterative statements: while loop - do-while loop - for loop - Nested loops - Break and Continue statements - goto.	12	Text Book/ Reference Books/NPTEL
III	Function and Arrays: Function: Need for functions - Elements of functions - Function declaration and prototypes- parameter passing- scope of variables - Storage Classes - recursive function - Arrays: Introduction - Types of arrays - Declaration and Initialization of Arrays -Passing arrays to functions.	12	Text Book/ Reference Books/NPTEL
IV	Strings and Pointers: Declaring and Initializing the string variables - String handling functions. Pointers: Understanding Pointers - Declaration and Initialization of pointer variables - Accessing variables through pointers - Pointers and arrays - Pointers and Strings - Dynamic memory allocation.	12	Text Book/ Reference Books/NPTEL
V	Structures and Files: Structures - Nested structures - Pointer and Structures - Array of structures -Structures and functions- Union. Files: Defining and opening a File - Closing a file - I/O Operations on files - Command Line Arguments.	12	Text Book/ Reference Books/NPTEL
Total		60	

Text book	1.	Reema Thareja, 2016, "Programming in C", 2nd Edition, Oxford University Press.
Reference Books	1.	E. Balagurusamy, 2017, "Programming in ANSI C", 7th Edition, TMH.
	2.	Paul Deitel, Harvey Deitel, 2019, "C How to Program", 8th Edition, Pearson
	3.	Ashok N. Kamthane, 2009, "Programming and Data Structures", 1st Edition, Pearson Education.
	4.	Anita Goel, Ajay Mittal, 2016, "Computer Fundamentals and Programming in C", 1st Edition, Pearson.
	5.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4th Edition, McGraw Hill Education.

Journal and Magazines	-
E-Resources and Website	https://nptel.ac.in

Learning Method	Chalk and Talk/ Assignment/Seminar/ Group Discussion/ Case Study
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Focus of the Course	Skill Development/ Employability/ Entrepreneurial Development/ Innovations
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Semester - I							
CORE II: COMPUTER ORGANIZATION AND ARCHITECTURE							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26CYU1CA	COMPUTER ORGANIZATION AND ARCHITECTURE	CORE	48	-	-	4

Preamble	This course has been designed for students to learn and understand • The fundamental digital logic concepts. • The combinational logic circuits and sequential logic circuits. • The concepts behind memory design and its memory types.
Prerequisite	A basic understanding of mathematics and logical reasoning

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand the functionality of basic logic gates and Boolean Algebra.	K2
CO2	Describe the principles of combinational and sequential logic circuits.	K3
CO3	Demonstrate proficiency in binary number representation, base conversions and operations	K3
CO4	Understand key concepts of Computer Organization.	K4
CO5	Interpret the basic concepts of memory hierarchy and its components.	K5

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	M	S	S	M	S
CO3	M	M	S	M	M
CO4	S	M	M	M	S
CO5	M	S	S	M	S

26CYU1CA	COMPUTER ORGANIZATION AND ARCHITECTURE
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Syllabus

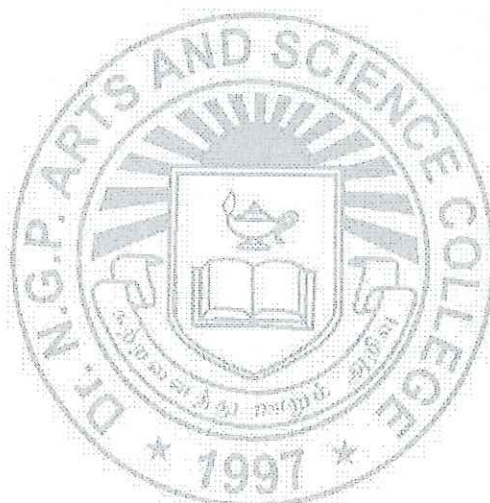
Unit	Content	Hrs	Resources
I	Digital Logic Circuits Digital Computers-Logic Gates- Boolean Algebra: Boolean Function-Boolean Expression-DeMorgans Theorem- Complement of a function- Map Simplification: Product of Sums Simplification-Don't Care Conditions.	8	Text Book
II	Combinational and Sequential Circuits Combinational Circuits: Half Adder-Full Adder- Sequential Circuits: Flip Flops: SR, JK, T, Edge Triggered. Digital Components: Integrated Circuits-Decoders-Encoder-Multiplexer- Registers- -Demultiplexer.	10	Text Book
III	Data Representation Number Systems: Decimal-Binary-Octal-Hexadecimal- Conversion. Complements: r-1's complements, r's complements - Subtraction of unsigned numbers - Arithmetic Addition - Arithmetic Subtraction - Other binary codes.	10	Text Book
IV	Computer Organization Instruction codes - Computer registers - Computer instructions - Timing and control - Instruction Cycle - Input/Output configuration - Input/Output instructions - Program interrupt - Interrupt cycle	10	Text Book
V	Memory Organization Central Processing Unit: Instruction formats and Addressing Modes. Memory Hierarchy - Main Memory - Auxillary Memory - Associative memory - Cache memory.	10	Text Book
Total		48	

Text book	1.	M. Morris Mano, 2022, "Computer System Architecture", 3 rd edition, Pearson India Education.
Reference Books	1.	M. Morris Mano, 2019, "Digital Logic and Computer Design", Pearson India Education.
	2.	S. Salivahanan and S Arivazhagan, 2018, "Digital Circuits and Design", 5 th Edition, Oxford University Press, Noida.
	3.	Thomas Floyd L., 2015, "Digital Fundamentals", 11 th Edition, Pearson Publication Ltd, New Delhi

Journal and Magazines	https://ieeexplore.ieee.org/document/1641522
E-Resources and Website	https://onlinecourses.nptel.ac.in/noc22_cs88/preview https://www.youtube.com/channel/UC2GUBG_WsP0OQ5tXXocwp3Q/videos

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study
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Focus of the Course	Skill Development
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Semester - I CORE PRACTICAL -I: PROGRAMMING IN C							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26CYU1CP	PROGRAMMING IN C	CORE PRACTICAL	-	-	48	2

Preamble	This course has been designed for students to Implement: • Basic Structure of C Programs. • Concepts of conditional statements and looping. • Functions and Structures
Prerequisite	-

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Illustrate the basic concepts in C.	K1
CO2	Demonstrate Operators	K2
CO3	Implement the concepts of conditional statements	K2
CO4	Demonstrate Arrays and functions.	K3
CO5	Assess structures and files.	K5

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	M	M	S	M	S
CO3	M	M	S	M	S
CO4	M	M	S	M	S
CO5	M	M	S	S	S

S.No

List of Programs

- 1 Develop a program to understand the concept of data types and variables.
- 2 Develop programs to familiarize the different types of operators
- 3 Implement the concept of branching statements using simple programs.
- 4 Develop programs to practice the concepts of looping statements
- 5 Implement the concepts of one- and two-dimensional arrays.
- 6 Develop a program to sort the given set of numbers using arrays
- 7 Demonstrate the operations of strings variables and functions.
- 8 Using functions demonstrate the concept of code reusability.
- 9 Implement the concept of structures.
Compute the following operations using Pointers:
- 10 i. Addition of two matrices
ii. Multiplication of two matrices.
- 11 Using File Operations display the contents of a file.
- 12 Develop a program to copy the contents of one file to another

Text Books	1.	Ashok N. Kamthane, 2009, "Programming and Data Structures", 1 st Edition, Pearson Education.
	2.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4 th Edition, McGraw Hill Education.

Learning Method	Demonstration/ Hands on Experiments
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Focus of the Course	Skill Development/ Employability
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Semester - I IDC: MATHEMATICS FOR COMPUTING - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26MTU1ID	MATHEMATICS FOR COMPUTING - I	IDC	48	12	-	4

Preamble	This course has been designed for students to learn and understand - the concepts of matrices and linear systems - the technique of obtaining eigen values and eigen vectors - the method of solving linear system of equations
Prerequisite	Knowledge on Basic Mathematics

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Recall definitions of systems of linear equations, matrices, and basic matrix operations.	K1
CO2	Apply matrix methods to solve problems in network analysis, electrical circuits, and chemical equations.	K3
CO3	Explain minors, cofactors, and methods of determinant evaluation.	K2
CO4	Analyze systems of differential equations using eigenvalues and eigenvectors.	K4
CO5	Evaluate and compare different numerical methods for solving algebraic and linear systems.	K5

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	M	S	M	S
CO3	S	S	S	S	M
CO4	S	M	M	S	M
CO5	S	M	S	M	M

26MTU1ID	MATHEMATICS FOR COMPUTING - I
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Syllabus

Unit	Content	Hrs	Resources
I	Systems of Linear Equations: Introduction to system of linear equations- - linear systems in two and three unknown - augmented matrices and elementary row operations - Gaussian elimination- Matrices and Matrix operations - inverses - algebraic properties of matrices - elementary matrices - method for finding A^{-1} - invertible matrices.	13	Text Book 1
II	Matrix Transformations and Applications: Diagonal matrices - triangular matrices - symmetric matrices - Matrix Transformations - Network Analysis - Electrical Circuits - Balancing Chemical Equations - Polynomial Interpolation - Leontief Input-Output Models.	12	Text Book 1
III	Determinants: Introduction - determinants by cofactor expansion- minors and cofactors - technique for evaluating 2×2 and 3×3 determinants - evaluating determinants by row reduction - elementary row operations - Matrices with proportional rows or columns - properties of determinants - Cramer's rule.	12	Text Book 1
IV	Eigenvalues and Eigenvectors: Definition of eigenvalues and eigenvectors - computing eigenvalues and eigenvectors - Diagonalization - Geometric and Algebraic multiplicity - complex vector spaces - vectors in C^n - differential equations - first order linear systems - solution by diagonalization.	10	Text Book 1
V	Solution of Algebraic, Transcendental Equations and Linear Systems: Introduction - Newton-Raphson method - Direct methods - Matrix inversion method - Gaussian elimination method - Gauss Jordan method - Iterative methods - Gauss Seidel Method - Gauss Jacobi method.	13	Text Book 2
Total		60	

Note: Distribution of marks 80% Problem and 20% Theory
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Text book	1.	Howard Anton and Chris Rorres, 2015 "Elementary Linear Algebra with Supplemental Applications", 11 th Edition, Wiley India Pvt. Ltd, New Delhi. (Unit I to IV).
	2.	Sastry S.S, 2012, " Introductory methods of Numerical Analysis", Prentice- Hall of India. New Delhi. (Unit V).
Reference Books	1.	Partha Karmakar, Chandan Bikash Das, Pabitra kumar Gouri, 2021 "Introduction to Linear Algebra", 1 st Edition, Books and Allied(P) Ltd, Kolkata.
	2.	Gilbert Strang, 2005, "Linear Algebra and its Applications", 4 th Edition, Brooks/Cole, Noida.
	3.	Veerarajan T, Ramachandran.T, 2004. "Theory and Problems in Numerical Methods with Programs in C and C++", 10 th Edition, Tata Mc-Graw Hill Publishing Company Limited, New Delhi.
	4.	Venkataraman M.K. 2004, "Numerical Methods in Science and Engineering", 4 th Edition, NPC.

Journal and Magazines	https://www.ijream.org/papers/ICRTET0062.pdf
E-Resources and Website	<u>Matrices: Definition, Properties, Types, Formulas, and Examples</u> (geeksforgeeks.org) https://nptel.ac.in

Learning Method	Chalk and Talk/Assignment/Seminar
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Focus of the Course	Skill Development
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BoS Chairman / HoD
 Dept. of Computer Science with Cyber Security
 Dr. N.G.P. Arts and Science College.
 Coimbatore - 641 048.

 Dr.N.G.P. Arts and Science College		
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