



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

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
 Approved by Government of Tamil Nadu & Accredited by NAAC with A++ Grade (3rd Cycle - 3.64 CGPA)
 Dr. N.G.P. - Kalapatti Road, Coimbatore – 641 048, Tamil Nadu, India
 Web : www.drngpasc.ac.in | Email : info@drngpasc.ac.in | Phone : +91-422-2369100

REGULATIONS 2026-27 for Under Graduate Programme (Outcome Based Education model with Choice Based Credit System) Bachelor of Science in Computer Science with Data Analytics Degree (For the students admitted during the academic year 2026-27)

Programme: B. Sc. (Computer Science with Data Analytics)

Eligibility

Candidates for admission to the first year of the **Bachelor of Science (Computer Science with Data Analytics)** 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 there to 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.

Programme Educational Objectives

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

1. Demonstrate expertise to solve diverse range of problems in computer science.
2. Exhibit skills for employment in industries especially in the field of Data Analytics
3. Practice professional ethics and remain socially responsible.
4. Involve in life-long learning by adapting contemporary technologies, tools and Methodologies.
5. Progress towards higher studies and entrepreneurship

PROGRAMME OUTCOMES

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

PO Number	PO Statement
PO1	Ability to apply knowledge of Computer science and mathematics to identify problems and model solutions
PO2	Ability to analyze large data sets in the context of real world problems and interpret results
PO3	Ability to Design, Implement and Evaluate solutions for computing problems
PO4	Ability to apply current techniques, skills and tools necessary for data analytics
PO5	Ability to exhibit soft skills and understand professional and social responsibilities

Guidelines for Programmes offering Part I& Part II for Four Semesters

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)	12	12 x 4 = 48	I to VI
	Core (Credits 3)	2	2 x 3 = 6	I to VI
	Core (Credits 5) (Embedded- Core)	2	2 x 5 = 10	III to IV
	Core Practical (Credits 2)	3	3 x 2 = 6	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/Advance Tamil/Human Rights, & Women's Rights (AECC)	1	2	II
	Innovation & IPR/ Innovation, IPR & Entrepreneurship (AECC)	1	2	VI
	Generic Elective (GE)	1	1 x 2=2	V
V (2 Credits)	NSS/NCC/YRC/RRC/Yoga/Sports/ Clubs/Health and Wellness	-	2	I – II
TOTAL CREDITS			142	

CURRICULUM

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (hours)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
First Semester												
Part- I												
26TLUI1TA	Language-I	Tamil-I	4	1	-	5	60	3	25	75	100	3
26TLUI1HA		Hindi-I										
26TLUI1MA		Malayalam-I										
26TLUI1FA		French -I										
Part- II												
26ELUI1EA	Language-II	English -I	4	-	1	5	60	3	25	75	100	3
Part- III												
26AIUI1CA	Core - I	Programming in C	4	1	-	5	60	3	25	75	100	4
26DAUI1CP	Core Practical - I	C Programming	-	-	4	4	48	3	40	60	100	2
26AIUI1CB	Core -II	Digital Logic Design	4	-	-	4	48	3	25	75	100	4
26MTUI1ID	IDC -I	Mathematics for Computing -I	4	1	-	5	60	3	25	75	100	4
Part-IV												
26CEUI1AA	AECC-I	Environmental Studies	2	-	-	2	24	-	50	-	50	2
Part-V												
26DAUI1XA	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 (hours)	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										
26TLU2MA		Malayalam-II										
26TLU2FA		French -II										
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
26DAU2CA	Core -IV	Python for Data Science	4	-	-	4	48	3	25	75	100	4
26DAU2CP	Core Practical- II	Python Programming	-	-	4	4	48	3	40	60	100	2
26MTU2IC	IDC -II	Discrete Mathematics	4	1	-	5	60	3	25	75	100	4
Part- IV												
26TLU2AA	AECC-II	Basic Tamil/ Advanced Tamil/Human Rights and Women's Rights	2	-	-	2	24	-	50	-	50	2
26TLU2AB												
26CMU2AA												
Part- V												
26DAU2XA	Extension Activity	NSS/NCC/YRC/ RRC/Yoga/Sports/ Clubs/ Health and Wellness	-	-	-	-	-	-	50	-	50	1
Total			22	3	5	30	360	-	-	-	700	23

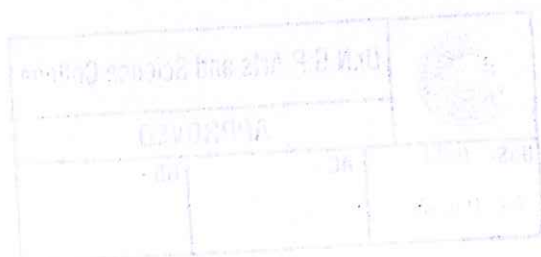
Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (hours)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Third Semester												
Part- I												
26TLU3TA	Language-I	Tamil-III	3	1	-	4	48	3	25	75	100	3
26TLU3HA		Hindi-III										
26TLU3MA		Malayalam-III										
26TLU3FA		French -III										
26ELU3EA	Language-II	English -III	3	1	-	4	48	3	25	75	100	3
Part- III												
26CAU3CA	Core-V	Object Oriented Programming with Java	4	-	-	4	48	3	25	75	100	4
26CSU3CA	Core -VI	Operating Systems	3	-	-	3	36	3	25	75	100	3
26DAU3CM	Core Practical - III	Statistical Analysis with R	3	-	4	7	84	3	40	60	100	5
26DAU3SP	SEC Practical- I	Programming in Java	-	-	4	4	48	3	40	60	100	2
26MTU3ID	IDC -III	Mathematics for Computing- II	4	-	-	4	48	3	25	75	100	4
Total			20	02	8	30	360	-	-	-	700	24

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (hours)	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										
26TLU4MA		Malayalam-IV										
26TLU4FA		French -IV										
Part- II												
26ELU4EA	Language-II	English -IV	3	1	-	4	48	3	25	75	100	3
Part- III												
26DAU4CA	Core -VII	Database System Concepts	4	-	-	4	48	3	25	75	100	4
26DAU4CB	Core VIII	Software Engineering	3	-	-	3	36	3	25	75	100	3
26DAU4CM	Core Practical - IV	Data Mining	3	-	4	7	84	3	40	60	100	5
26DAU4SP	SEC Practical -II	Database Systems	-	-	4	4	48	3	40	60	100	2
26COU4IB	IDC - IV	Customer Relationship Management	4	-	-	4	48	3	25	75	100	4
Total												
			20	02	8	30	360	-	-	-	700	24

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (hours)	Max Marks			Credits	
						Week	Total		CIA	ESE	Total		
Fifth Semester													
Part III													
26DAU5CA	Core – IX	Computer Networks and Communication	4	1	-	5	60	3	25	75	100	4	
26DAU5CB	Core – X	Artificial Intelligence	4	1	-	5	60	3	25	75	100	4	
26DAU5CC	Core - XI	Big Data Technologies	4	1	-	5	60	3	25	75	100	4	
26DAU5CP	Core Practical - V	Big Data Technologies	-	-	4	4	48	3	40	60	100	2	
26DAU5SP	SEC Practical - III	Web Designing	-	-	4	4	48	3	40	60	100	2	
26DAU5DA	DSE-I	Cloud Computing	4	1	-	5	60	3	25	75	100	4	
26DAU5DB		Parallel and Distributed Computing											
26DAU5DC		Text Analytics											
26DAU5TA	IT	Industrial Training	-	-	-	-	-	3	40	60	100	2	
Part IV													
	GE		2	-	-	2	24	-	50	-	50	2	
Total			18	4	8	30	360	-	-	-	750	24	

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (hours)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Sixth Semester												
Part - III												
26DAU6CA	Core -XII	Next Generation Databases	4	-	-	4	48	3	25	75	100	4
26DAU6CB	Core -XIII	Machine Learning	4	-	-	4	48	3	25	75	100	4
26DAU6SP	SEC Practical-IV	Data Visualization	-	-	4	4	48	3	40	60	100	2
26DAU6CV	Core-XIV	Project and Viva voce	-	-	8	8	96	3	40	60	100	4
26DAU6DA	DSE –II	Internet of Things	4	-	-	4	48	3	25	75	100	4
26DAU6DB		Human Computer Interaction										
26DAU6DC		Web Analytics										
26DAU6DD	DSE –III	Generative AI and Applications	4	-	-	4	48	3	25	75	100	4
26DAU6DE		Data Privacy and Security										
26DAU6DF		Graph Analytics										
Part IV												
26BTU6AA	AECC-III	Innovation, IPR and Entrepreneurship	2	-	-	2	24	-	50	-	50	2
Total			18	-	12	30	360	3	-	-	650	24
*Grand Total											4200	142

*Total Credit should not exceed 142 credits



Dr. N. S. R. A. S. and Science College
Gomphre - 605 005
B.Sc. Computer Science with Data Analytics
Students admitted during the AY 2026-27

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	26DAU5DA	Cloud Computing
2	26DAU5DB	Parallel and Distributed Computing
3	26DAU5DC	Text Analytics

Semester VI (Elective II) List of Elective Courses

S. No.	Course Code	Name of the Course
1	26DAU6DA	Internet of Things
2	26DAU6DB	Human Computer Interaction
3	26DAU6DC	Web Analytics

Semester VI (Elective III) List of Elective Courses

S. No.	Course Code	Name of the Course
1	26DAU6DD	Generative AI and Applications
2	26DAU6DE	Data Privacy and Security
3	26DAU6DF	Graph Analytics

GENERIC ELECTIVE COURSES (GE)

The following are the courses offered under Generic Elective Course

Semester V

S. No.	Course Code	Name of the Course
1	26DAU5GA	Data Visualization

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	26DAUSSA	Decision Support Systems
2	26DAUSSB	Software Testing

[Signature]
BoS Chairman/HoD
Department of Computer Science with Data Analytics
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

 Dr.N.G.P. Arts and Science College		
APPROVED		
BoS- <i>14th</i>	AC -	GB -
02.04.26		

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	K2
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	

Note: Case studies related to the above topics to be discussed (Examined Internal only)

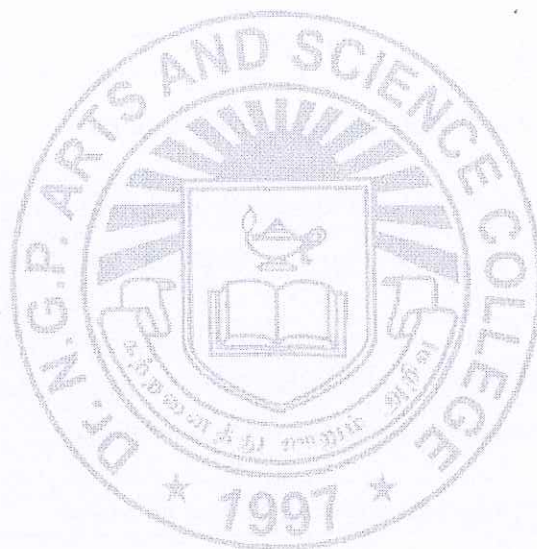
Text book	1.	Reema Thareja, 2016, "Programming in C", 2nd Edition, Oxford University Press.
Reference Books	1.	E. Balagurusamy, 2017, "Programming in ANSI C", 7th Edition, TMH.
	2.	Paul Deitel, Harvey Deitel, 2019, "C How to Program", 8th Edition, Pearson

5.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4th Edition, McGraw Hill Education.
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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 PRACTICAL -I :C PROGRAMMING							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26DAU1CP	C PROGRAMMING	CORE PRACTICAL	-	-	48	2

Preamble	This course has been designed for students to implement: • Essential programming concepts, including syntax, data types, control structures, • Arrays, Functions and memory management • Structures and file operations
Prerequisite	Problem solving, critical thinking

Course Outcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Develop C programs applying conditional statements	K3
CO2	Solve problems using looping structures for iterative tasks	K3
CO3	Practice problems using arrays and functions focusing on basic operations and manipulation	K3
CO4	Implement programs using strings and pointers	K3
CO5	Demonstrate programs using structures and files	K3

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

26DAU1CP	C PROGRAMMING
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S.No	List of Experiments
1	Program to understand the concepts of data types
2	Program to demonstrate conditional statements
3	Program to implement patterns
4	Program to perform matrix and Dynamic Array operations
5	Program to Work with pointers
6	Program to implement functions
7	Program to perform recursion
8	Program to implement String manipulation
9	Program to test dynamic Memory Allocations
10	Program to implement structures
11	Program to perform union and enumerated Data types
12	Application Program using File operations

Manuals	1.	Ashok N. Kamthane, 2009, "Programming and Data Structures", 1st Edition, Pearson Education.
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Learning Method	Demonstration/ Hands on Experiments
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Focus of the Course	Skill Development/ Employability
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Semester – I							
CORE II: DIGITAL LOGIC DESIGN							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	26AIU1CB	DIGITAL LOGIC DESIGN	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	Demonstrate proficiency in binary number representation, base conversions and operations.	K2
CO2	Understanding the functionality and truth tables of basic logic gates.	K2
CO3	Analyze and optimize the combinational logic circuits.	K3
CO4	Understand the fundamental concepts of flip-flops and registers.	K4
CO5	Evaluate and compare the architecture of microprocessors and microcontrollers.	K5

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

26AIU1CB	DIGITAL LOGIC DESIGN
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Syllabus

Unit	Content	Hrs	Resources
I	Number System and Boolean Algebra Binary Numbers - Number base conversions- Octal and Hexadecimal conversions - Compliments - Binary codes - Decimal codes. Basic Definitions- Boolean functions - Canonical standard forms: Minterms and Maxterms - Sum of Minterms - Product of Maxterms - conversion between canonical forms.	10	Text Book
II	Logic Gates and Boolean functions Digital Logic Gates: Basic gates - Universal gates - Exclusive gates - The Map Method - Two and three variable Maps- Four variable Map - Five and Six Variable Maps - Sum of Product and Product of Sum simplification - NAND and NOR Implementation - Don't care conditions.	10	Text Book
III	Combinational Logic Adders: Half-Adder, Full-Adder. Subtractors Half-Subtractor, Full-Subtractor. Multilevel NAND Circuits: Universal Gate. Multilevel NOR Circuits: Universal Gate. Binary Parallel Adder - BCD Adder. Decoders: Demultiplexers- Encoders - Multiplexer.	10	Text Book
IV	Sequential Logic Introduction- Flip-flops-Clocked RS Flip-flop - D Flip-flop - JK Flip-flop - Design of Counters- Registers -Shift registers- Ripple Counters- Synchronous Counters- Error Correcting Codes.	10	Text Book
V	Microprocessor and Microcontrollers Introduction- Architecture of Microprocessor - Evolution of Microprocessor - Applications of Microprocessor - Evolution of Microcontrollers - Architecture and Memory Organization of 8051 Microcontroller - Application of Microcontrollers.	8	Text Book
Total		48	

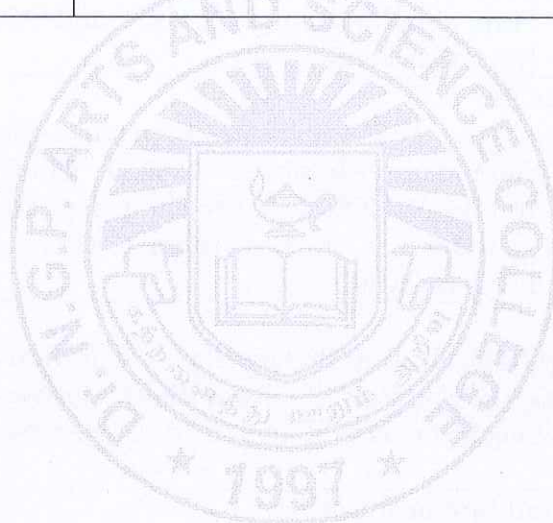
Text books	1.	M. Morris Mano, 2019, "Digital Logic and Computer Design", Pearson India Education.
	2.	Soumitra Kumar Mandal, 2018, "Microprocessors and Microcontrollers - Architecture, Programming and Interfacing using 8085, 8086, 8051", 15th Edition, Tata Mc Graw Hill Education.
Reference Books	1.	M. Morris Mano, 2022, "Computer System Architecture", 3rd Edition, Pearson India Education.
	2.	S. Salivahanan and S Arivazhagan, 2018, "Digital Circuits and Design", 5th Edition, Oxford University Press, Noida.

3.	Thomas Floyd L., 2015, "Digital Fundamentals", 11th Edition, Pearson Publication Ltd, New Delhi.
4.	David H, Ganzolo S, Patrick G, Robert B, Jerome H, 2017, "IoT Fundamentals: Networking Technologies, Protocols, and use cases for the Internet of Things", 1st Edition, Cisco Press.
5.	Aditya P Mathur, 2016, "Introduction to Microprocessor", 3rd Edition, McGraw Hill Education.

Journal and Magazines	-
E-Resources and Website	https://www.coursera.org/learn/digital-systems https://www.nesoacademy.org/ec/05-digital-electronics

Learning Method	Chalk and Talk/ Assignment/ Role Play
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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	S
CO2	S	S	S	S	M
CO3	S	S	S	M	M
CO4	S	S	S	S	M
CO5	S	S	M	S	M

26MTU1ID	IDC: 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 McGraw 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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Dr. S. S. S.
 BoS Chairman/HoD
 Department of Computer Science with Data Analytics
 Dr. N. G. P. Arts and Science College
 Coimbatore – 641 048

 Dr.N.G.P. Arts and Science College		
APPROVED		
BoS- 1 st H	AC -	GB -
02.04.26		