



K.L.E. Society's

**BACHELOR OF COMPUTER APPLICATION**

**P. C. Jabin Science College, HUBBALLI  
AUTONOMOUS**

**(Affiliated to Karnatak University)  
Accreditation at A++ with 3.54 CGPA by NAAC.**

# **REVISED NEP** **2024**

## **FIRST** **SEMESTER**

### **SYLLABUS**

#### **I SEMESTER SUBJECT LIST**

<b>SEMESTER-I</b>									
<b>Category</b>	<b>Subject Code</b>	<b>Title of the Paper</b>	<b>Teaching hours/week</b>		<b>Examination</b>			<b>Duration of exams (Hrs)</b>	<b>Credit</b>
				<b>yPracti</b>		<b>Theor y/ Practi cal</b>	<b>Tota l</b>		
AECC	213E		3	0	20	80	100	3	3
AECC	211KAN10		3	0	20	80	100	3	3

	214HI								
DSC1	228DSC101	Programming in C	4	0	20	80	100	3	4
DSC2	228DSC102	Programming in C Lab	0	4	10	40	50	2	2
DSC3	228DSC103	Web Programming	4	0	40	80	100	3	4
DSC4	228DSC104	Web Programming Lab	0	4	10	40	50	2	2
		105	4	0	20	80	100	3	4
SEC1	228SEC101	Constitutional Values	2	0	10	40	50	2	2
<b>Total Credits/Marks</b>			<b>20</b>	<b>8</b>			<b>650</b>		<b>24</b>

<b>Year</b>	<b>I</b>	<b>Course Code: 228DSC101</b>	<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>	<b>Course Title: Programming in C</b>	<b>Hours</b>	<b>56</b>
<b>Formative Assessment Marks:</b>		<b>Summative Assessment Marks:</b>	<b>Duration of ESA: 03 hrs.</b>	
<b>Course Outcomes</b>	At the end of the course, the students should be able to: <ul style="list-style-type: none"> <li>o Understand classification of computers, its features and parts, software and its types</li> <li>o Apply techniques of problem solving to design C code</li> <li>o Read, understand and trace the execution of programs written in C language</li> <li>o Apply programming control structures for a given problem to create C code</li> <li>o Understand derived datatypes and develop C code using arrays/ strings</li> <li>o Understand user defined functions and datatypes to develop C code</li> </ul>			
<b>Unit No</b>	<b>Course Content</b>			<b>Hours</b>

<p><b>UNIT - 1</b></p>	<p><b>Introduction to programming overview of C:</b> Basic Programming concept: Algorithms flowchart, Modular Programming and structured programming. Introduction, Importance of 'C', Sample 'C' Programs, Basic structure of 'C' programs, Programming style, Executing a 'C' Program. 'C' Tokens, keywords, and identifiers, constants, variables, data types, declaration of variables, assigning values to variables, defining symbolic constants.</p> <p><b>Operators, Expression:</b> Arithmetic operators, Relational operators. Logical operators, Assignment operators, increment and decrement operators, conditional operators, bitwise operators, special operators, some computational problems, type conversion in expressions, operator precedence and associativity. Mathematical functions.</p>	<p>14</p>
<p><b>UNIT - 2</b></p>	<p><b>Input and Output statements:</b> Input and Output statements, reading a character, writing characters, formatted input, formatted output statements.</p> <p><b>Control structures &amp; Array:</b> Decision making with IF statement, simple IF statement, The IF-ELSE statement, nesting of IF. ELSE statements, The ELSE -IF ladder, The switch statement, The ?: operator, The GOTO statement, The WHILE statement, The DO statement, The FOR statement, jumps in loops. One dimensional array, Two dimensional arrays, initializing two-dimensional array, Multidimensional arrays.</p>	<p>12</p>

<p><b>UNIT - 3</b></p>	<p><b>User defined functions, string, Structure:</b> Need for user-defined functions, a multi-functional program, the form of 'C' function, return values and their types, calling a function, category of functions, recursion, functions with arrays.</p> <p>Declaring and initializing string variables, reading string from terminal, writing string to screen, arithmetic operations on characters, putting strings together. Comparison of two strings, string handling functions-strlen, strcat, strcmp, strcpy. Structure definition, giving values to members, structure initialization, comparison of structure variables, array as structure, array within structure, union.</p>	<p>12</p>
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<b>UNIT - 4</b>	<b>Pointers and file operations:</b> Understanding pointers, accessing the address of variables, declaring and initializing pointers, accessing a variable through its pointer definition, Basic file operations: Naming a file, opening a file, reading data from file, writing data to a file, and closing a file. Defining, Opening and closing a file. Input / Output operations on files: getc, putc, getw, putw, fprintf, fscanf.	12
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**Text Books:**

1. Fundamentals of Computers, E. Balaguruswamy (McGraw Hill)
2. Anil V. Choudhuri, The Art of Programming through Flowchart and Algorithms, Laxmi Pub.
3. E. Balaguruswamy: Programming in ANSI C (TMH)
4. Kamthane: Programming with ANSI and TURBO C (Pearson Education)
5. V. Rajaraman: Programming in C (PHI –EEE)
6. P.B. Kottur: Programming in C (Sapna Book House)

**References:**

1. P. K. Sinha & Priti Sinha: Computer Fundamentals (BPB)
2. C: The Complete Reference, By Herbert Schildt.
3. Kernighan & Ritchie: The C Programming Language (PHI)
4. S. Byron Gottfried: Programming with C (TMH)
5. Yashwant Kanitkar: Let us C

<b>Year</b>	<b>I</b>	<b>Course Code: 228DSC105</b>	<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>	<b>Course Title: Mathematics</b>	<b>Hours</b>	<b>50</b>
<b>Formative Assessment Marks:</b>	<b>Summative Assessment Marks:</b>		<b>Duration of ESA: 03 hrs.</b>	
<b>Course Outcomes</b>	<p>At the end of the course, the students should be able to:</p> <ul style="list-style-type: none"> <li>● Recognize when set theory is applicable to real-life situations, solve real life problems, and communicate real-life problems and solutions to others.</li> <li>● Define determinants and understand their relation to matrices.</li> <li>● Demonstrate a clear understanding of fundamental concepts.</li> <li>● Apply problem-solving techniques to solve recruitment-based problems.</li> <li>● Use appropriate strategies and shortcuts to improve speed and accuracy in solving aptitude problems during recruitment processes.</li> </ul>			
<b>Unit No</b>	<b>Course Content</b>			<b>Hours</b>

<b>UNIT – 1</b>	<b>Sets:</b> Introduction, Definition and Representation, Types of sets, Operations on sets, Venn Diagram, Complement of a set, Problems on Union and Intersection of two sets, De- Morgan’s Law.	12
<b>UNIT – 2</b>	<b>Linear Algebra:</b> Definition of Matrices. Types of matrices. Operations on matrices. Transpose, Co-factor, Adjoint and Inverse of a matrix. Definition and properties of Determinants. Solving pair of linear equations.	12
<b>UNIT – 3</b>	<b>Fundamentals of Logic:</b> Introduction, Propositions, Logical Connectives, Compound Propositions, Truth Tables, Tautology, Contradiction and Contingency, Logical Equivalence.	12
<b>UNIT – 4</b>	<b>Relations, Functions and Graph Theory:</b> Definition relation, Types of Relations, Definition of Function, Types of Function, Composition of Functions and Invertible Functions.  Graph Theory: Introduction to graphs, Graph terminology, Representing graph and graph isomorphism, Connectivity, Eulerian and Hamilton graph, Planar graph.	14

**Text Books:**

1. NCERT 11<sup>th</sup> and 12<sup>th</sup> Textbooks

**References:**

1. Quantitative Aptitude by Dr. R. S. Aggarwal
2. Aptitude by S. Chand

<b>Year</b>	<b>I</b>	<b>Course Code: 228DSC103</b>	<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>	<b>Course Title: Web Programming</b>	<b>Hours</b>	<b>50</b>
<b>Formative Assessment Marks:</b>	<b>Summative Assessment Marks:</b>		<b>Duration of ESA: 03 hrs.</b>	
<b>Course Outcomes</b>	At the end of the course, the students should be able to: o Analyze a web page and identify its elements and attributes. o Create web pages using HTML and Cascading Style Sheets. o Build dynamic web pages using JavaScript (Client side programming) o Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.			
<b>Unit No</b>	<b>Course Content</b>			<b>Hours</b>

<b>UNIT – 1</b>	<b>HTML &amp; HTML5</b> - History of Internet, world wide web, Introduction and Role of Web Technology in today 's Scenario and Internet Protocols related to web. Introduction to HTML, Basic structure of HTML document, Differences between HTML and HTML5, Text Formatting Tags, Lists, Image, Tables, Links, Form Elements, Multimedia tags, Frames, image maps.	12
<b>UNIT – 2</b>	<b>Dynamic HTML</b> -Event model: introduction, event ON CLICK, event ON LOAD – error handling with ON ERROR, tracking the mouse with event, more DHTML events. Filters and Transitions. Cascading Style Sheet (CSS3), Types of Style Sheets (In-line, External and Embedded), CSS Selectors.	12
<b>UNIT – 3</b>	<b>Java Script</b> -Role of Scripting Languages in Web Development, History of JavaScript, Data types, Operators, Control and Looping Structure. <b>Arrays and Strings</b> -Arrays, User Defined and Inbuilt Functions, String, Character and Date Functions, Document Object Model, Object Hierarchy in DOM, Event Handling, and Writing Client-Side Validation for HTML Form Elements.	14
<b>UNIT – 4</b>	<b>Introduction to XML</b> -Introduction; Syntax; Document structure; Document Type definitions; Namespaces; XML schemas; Displaying raw XML documents; Displaying XML documents with CSS; XSLT style sheets; XML processors; Web services.	12

**Text Books:**

1. Robert W. Sebestra, —Programming the World Wide Web, 7th Edition Addison Wesley Publication,2013.
2. A beginner's guide to HTML, CSS, Javascript, and Web Graphics, by Jennifer Niederst Robbins.
3. Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5 by Robin Nixon

**References:**

1. ChrisBates,—WebProgramming:BuildingInternetApplications,3rdEditionWiley2009.
2. PHP Objects, Patterns, and Practice by Matt Zandstra

<b>Year</b>	<b>I</b>	<b>Course Code: 228DSC102</b>	<b>Credits</b>	<b>2</b>
<b>Semester</b>	<b>I</b>	<b>Course Title: Programming in C Lab</b>	<b>Hours</b>	<b>30</b>

<b>Formative Assessment Marks:</b>	<b>Summative Assessment Marks:</b>	<b>Duration of ESA: 02 hrs.</b>
Course Outcomes	At the end of the course, the students should be able to: <ul style="list-style-type: none"> <li>• Develop a C program.</li> <li>• Control the sequence of the program and give logical outputs.</li> <li>• Implement strings in your C program.</li> <li>• Store different data types in the same memory.</li> <li>• Manage I/O operations in your C program.</li> <li>• Repeat the sequence of instructions and points for a memory location.</li> </ul>	

1. Write a C Program to find largest of three numbers.
2. Write a C Program to find simple and compound interest.
3. Write a C Program to find whether a given number is prime number or not.
4. Write a C Program to generate and print first 'n' FIBONACCI numbers.
5. Write a C Program that reverse a given integer number and check whether the number is palindrome or not.
6. Write a C Program to swap two numbers without using third variable.
7. Write a C Program to find if a character is alphabetic or numeric or special character.
8. C Program to Check Whether a Number is Positive, Negative, or Zero
9. Write a C Program to display result of a student using switch statement.
10. Write a C Program to print pyramid patterns using loops.
11. C Program to Generate Multiplication Table
12. C Program to Find the Maximum and Minimum in an Array
13. Write a C Program to read two matrices and perform addition and subtractions of two matrices.
14. Write a Program to find the factorial of a number using function.
15. Write a C Program to compute the sum of even numbers and the sum of odd numbers using a function.
16. Write a C Program to accept a sentence and convert all lowercase characters to uppercase and vice -versa.
17. Write a C Program to find the length of a string without using the built – in function.
18. Write a C Program using structures, to accept different goods with the number, price and date of purchase and display those.
19. C Program to Store Student Records as Structures and Sort them by Name.
20. Write a C Program to demonstrate pointers in C.

<b>Year</b>	<b>I</b>	<b>Course Code: 228DSC104</b>	<b>Credits</b>	<b>2</b>
<b>Semester</b>	<b>I</b>	<b>Course Title: Web Programming Lab</b>	<b>Hours</b>	<b>30</b>
<b>Course Pre requisite, if any</b>	<b>NA</b>			

<b>Formative Assessment Marks:</b>	<b>Summative Assessment Marks:</b>	<b>Duration of ESA: 02 hrs.</b>
Course Outcomes	At the end of the course, the students should be able to: <ul style="list-style-type: none"> <li>• Design and develop web applications.</li> <li>• Explain client and server-side scripting and their applicability.</li> <li>• Create scripts using JavaScript in a web page.</li> <li>• Integrate JavaScript in a web page.</li> <li>• Design forms and check for data accuracy.</li> </ul>	

1. Write HTML code to Illustrate text formatting tags.
2. Write HTML code to demonstrate ordered list and unordered list.
3. Write HTML code to demonstrate image tag <img> Tag
4. Write HTML code to demonstrate table tag and its attributes.
5. Write HTML code to demonstrate concept of links
6. Write an HTML code to demonstrate form tag
7. Write an HTML code to demonstrate frame tag
8. Write an HTML program to demonstrate Image maps.
9. Write an HTML program to demonstrate On click event
10. Write a program to demonstrate Onmouseover and Onmouseout event
11. Write a program to demonstrate Keyboard events.
12. Write an HTML program to demonstrate Filters.
13. Write an HTML program to demonstrate Transition
14. Write an HTML code to illustrate external CSS
15. Write a JS program to demonstrate arithmetic operators using form
16. Write a JS program to demonstrate switch statement
17. Write a JS program to demonstrate arrays operations
18. To write a program for get the name of the user from a form and show greeting text
19. Write an XML Program to display Student Details.
20. Write an XML Program to display Employee Details.

Course Title	<b>Comprehensive English-1</b>	CIA Marks	20
Course Code	113ENG101	SEE Marks	80
Scheme (L:T:P)	4:0:0	Credits	03
Teaching Hours	60	Examination Hours	03



Course objectives: This course will enable the students-

- To comprehend and appreciate prose and poetry.
- To understand the passage and to grasp its meaning.
- To develop the power of imagination, explanation, critical thinking and moral values through prose.
- To improve communicative skills.
- To use strategies to listen and speak actively and creatively
- To understand and use functional grammar

Course Outcome: After successful completion of the course, students are able:

113ENG101.1 To name and relate the literary genres and learn to understand and appreciate prose and poetry.

113ENG101.2 To infer and illustrate the basics of English grammar

113ENG101.3 To identify differences between listening and hearing.

113ENG101.4 To develop the technique of various speaking skills.

113ENG101.5 To utilize the critical thinking skills, analytical skills and presentation skills appreciate and be sensitized towards the prevailing environmental issues (natural, physical, social and cultural).

Mapping of CO with PO:

CO	PO									
	1	2	3	4	5	6	7	8	9	10
113ENG101.1	3									
113ENG101.2	2	2								
113ENG101.3	2									
113ENG101.4	3									
113ENG101.5	2	2								

Unit No	Course Content	Hours
<b>I</b>	<p><b>Prose</b></p> <ul style="list-style-type: none"> <li>• The Function of Education - J. Krishnamurti (Ethics)</li> <li>• True Patriotism and India's Gift for the World - Swami Vivekananda (Values)</li> <li>• Gender Equality is Your Issue Too - Emma Watson (Gender Issues) •</li> </ul> <p>Entrepreneurship - National Knowledge Commission</p>	<b>15</b>
		<b>15</b>

<p><b>II</b></p>	<p><b>Poetry</b></p> <ul style="list-style-type: none"> <li>• The Road not Taken <ul style="list-style-type: none"> <li>- Robert Frost (Employability)</li> </ul> </li> <li>• The Table Turned <ul style="list-style-type: none"> <li>- Wordsworth (Environment)</li> </ul> </li> <li>• The Coromandel Fishers <ul style="list-style-type: none"> <li>- Sarojini Naidu (Professional Ethics)</li> </ul> </li> <li>• This is the way to win our Lord Kudala Sangama, <ul style="list-style-type: none"> <li>- Basaveshwara (Skill, Values)</li> </ul> </li> </ul> <p>Only a Sivabhakta is well born (Translated By Prof. Tipperudraswami)</p>	
<p><b>III</b></p>	<p><b>Language skills and Communicative English (Skill, Employability and Entrepreneurship)</b></p> <p><b>Listening skill:</b></p> <ul style="list-style-type: none"> <li>• Meaning, types.</li> <li>• Listening and hearing.</li> <li>• Barriers of listening.</li> <li>• Advanced Comprehension.</li> <li>• Interactive Listening.</li> </ul> <p><b>Speaking skill</b></p> <ul style="list-style-type: none"> <li>• Self-introduction and Introduction of others.</li> <li>• Welcome speech, Vote of thanks.</li> <li>• Art of anchoring.</li> <li>• Public Speaking.</li> <li>• Extended Conversations, Debates and Discussions.</li> </ul>	<p><b>07+08</b></p>
<p><b>IV</b></p>	<p><b>Language Use - Grammar for usage and Competitive Exam (Skill) (Entrepreneurship) (Employability)</b></p> <p><b>Parts of Speeches, Articles and Determiners:</b></p> <ul style="list-style-type: none"> <li>• Parts of Speeches - Types, Functions and usage</li> <li>• Definite and indefinite articles</li> <li>• Quantifiers and determiners (some, any, no, much, many, etc.)</li> </ul> <p><b>Vocabulary and Word Formation</b></p> <ul style="list-style-type: none"> <li>• Types</li> <li>• Give One Word, Idioms and Phrases</li> <li>• Commonly confused words and phrases</li> </ul>	<p><b>12+03</b></p>

### Recommended Learning Resources

- Krishnamurti, J. (1953). *The Function of Education*. In *Education and the Significance of Life*. Krishnamurti Foundation Trust.
- Vivekananda, S. (1897). *True Patriotism and India's Gift for the World*. In *Complete Works of Swami Vivekananda*, Vol. 4. Advaita Ashrama.
- Coursera (2024). *What is Artificial Intelligence?* Retrieved from [Coursera](https://www.coursera.org/articles/what-is-artificial-intelligence).  
<https://www.coursera.org/articles/what-is-artificial-intelligence>
- Lenard, P. (1921). *Leonardo Da Vinci*. In *The Works of Leonardo Da Vinci*. Edited by Phillip Lenard. Oxford University Press.
- Frost, R. (1916). *The Road Not Taken*. In *Mountain Interval*. Henry Holt and Company.
- Wordsworth, W. (1798). *The Table Turned*. In *Lyrical Ballads*. J. & A. Arch.
- Naidu, S. (1912). *The Coromandel Fishers*. In *In the Bazaars of Hyderabad*. Macmillan and Company.
- Tipperudraswami. (2017). *Basaveshwara*. Sahitya Academy. Delhi

### Suggested Reading:

- Brown, H. D. (2001). *Teaching by Principles: An Interactive Approach to Language Pedagogy*. Pearson Education
- R. P. Singh's *Functional Skills in Language and Literature*, OUP
- Raymond Murphy's *Essential Grammar in Use*, CUP
- P Kiramani Dutta, Geetanjali Verma and CLN Prakash, *A Course in Communication Skills*, CUP
- Jayashri Mohanraj(ed) *Speak Well*, Hyderabad: Orient Longman

### All UG Programmes Semester –I

#### Compulsory Paper (AECC)

**Course Title:** Constitution of India: Philosophy and Values: Compulsory Paper.

**Course Code:** Z1CNV0T1

Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/ Hours/ Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
AECC	Theory	02	02	30 hrs.	1.5hrs.	10	40	50

**Course Outcomes (COs):**At the end of the course, students will be able to: **CO1:**

Inculcate a sense of civic responsibility and duty towards upholding constitutional values, contributing to the democratic process, and safeguarding the integrity of the Constitution.

**CO2:** Grasp the foundational principles of democracy as enshrined in the Constitution, such as sovereignty, equality, liberty, and fraternity.

**CO3:** Develop a commitment to social justice, inclusivity, and affirmative action for

disadvantaged groups and develop respect for Constitutional Institutions:

**CO4:** Ability to apply constitutional principles in analyzing contemporary issues, such as governance, rights violations, social movements, and policy debates.

<b>Unit</b>	<b>Title: - Constitution of India: Philosophy and Values</b>	<b>30 hrs/sem</b>
Unit I	<b>Introduction:</b> 1.1. Meaning, Nature and Importance of Constitution 1.2. Indian Constitutional Development 1.3. Constituent Assembly, Making of Indian Constitution and Role of Dr. B R Ambedkar	10 hrs
Unit II	<b>Constitutional Philosophy and Its Values:</b> 1.1. Preamble 1.2. Citizenship 1.3. Features of Indian Constitution	10 hrs
Unit III	<b>Constitutional Rights and Duties</b> 1.1. Fundamental Rights 1.2 Fundamental Duties 1.3 Directive Principles of State Policy	10 hrs

**Books recommended:**

1. M. Laxmikanth, Indian Polity, Mc Graw Hill, 2023.
2. D.D.Basu, Introduction To The Constitution Of India, LexisNexis Butterworths Wadhwa Nagpur,2009.
3. D.D.Basu,Constitutional Law of India, Prentice Hall of India
4. Bakshi, P.M. The Constitution of India, 3rd Edition, Universal Law Publishing Co. Pvt. Ltd. Delhi, 1996 Reprint 1997.
5. Pylee, M.VAnintroduction to The Constitution of India 2nd Revised Edition, Vikas Publishing House Pvt. Ltd., New Delhi, 1997 Reprint 1998.
6. Shukla, V N. Constitution of India, 10th Edition, Eastern Book Company, Lucknow, 200 1.
7. Subhash C. Kashyap,Our Costitution –An Introduction to India’s Constitution and Constitutional Law, 5th Edition,National Book Trust, 2023.
8. S.K.Choubey,The Making and Working of Indian Constitution, 1st Edition,National Book Trust,2020

<b>Formative Assessment for Theory</b>	
<b>Assessment Occasion/ type</b>	<b>Marks</b>
Internal Assessment Test 1	05
Internal Assessment Test 2	05
Internal Assessment Test 3	05
Assignment	05

<b>Total</b>	<b>20 Marks</b>
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**Question Paper Pattern:**

**20 Multiple Choice Questions.**

**Each carry 1 mark:**

**Maximum Marks = 20**

**Answering in OMR Sheet**