



MOOGAMBIGAI CHARITABLE AND EDUCATIONAL TRUST

# Rajarajeswari College of Engineering

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)  
#14, Ramohalli Cross, Kumbalagodu, Mysore Road, Bengaluru - 560074



## Bachelor of Computer Applications Scheme 2024-25



**MOOGAMBIGAI CHARITABLE AND EDUCATIONAL TRUST**  
**Rajarajeswari College of Engineering**  
 (An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)



**Bachelor of Computer Applications**  
 Scheme of Teaching and Examinations – 2024  
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)  
 (Effective from the Academic Year 2024-25)

**Sem: I**

S. No	Course Category and Course Code		Course Title	TD / PSB	Teaching Hours / Week				Examination			
					Lecture	Practical/ Seminar	Tutorial / SDA	Credits	Duration in Hours	CIE Marks	SEE Marks	Total Marks
					L	P	T/S					
1.	PCC	B24PSC101	Problem solving using C Programming	BCA	3	0	0	3	3	50	50	100
2.	PCC	B24COE102	Computer Essentials	BCA	3	0	0	3	3	50	50	100
3.	PCC	B24FOM103	Fundamentals of Mathematics	BCA	3	0	0	3	3	50	50	100
		B24FOA103	Fundamentals of Accountancy									
4.	AEC	B24IKS104	Indian Knowledge System (MCQ)	BCA	2	0	0	2	1	50	50	100
5.	AEC	B24BKA105	baLake Kannada (MCQ)	BCA	2	0	0	2	1	50	50	100
		B24SKA105	Samskrutika Kannada (MCQ)									
6.	AEC	B24PCS106	Professional Communication Skills	BCA	2	0	0	2	3	50	50	100
7.	PCCL	B24PCL107	Programming in C Laboratory	BCA	1	2	0	2	3	50	50	100
8.	PCCL	B24ECL108	Essentials of Computer Laboratory	BCA	1	2	0	2	3	50	50	100
9.	VAC	B24ENS109	Environmental Studies(MCQ)	BCA	0	0	2	1	1	50	50	100
<b>TOTAL</b>					<b>17</b>	<b>4</b>	<b>2</b>	<b>20</b>		<b>450</b>	<b>450</b>	<b>900</b>

Note: AEC-Ability Enhancement Courses, PCC – Professional Core Courses, PCCL – Professional Core Course Laboratory, VAC – Value Added Courses. SDA- Skill Development Activities.  
 At the beginning of the semester 21 days of the Induction Program o 11 days in the beginning of the 1st semester and 10 days in the beginning of the 2<sup>nd</sup> semester

*L. Ramesh*  
 Dean Academics  
 Rajarajeswari College of Engineering  
 Bengaluru - 560 074.

*R.H.*  
 Principal  
 RAJARAJESWARI  
 COLLEGE OF ENGINEERING  
 Damohalli Cross, Bengaluru



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## Bachelor of Computer Applications Syllabus

2024-25

**I Semester**



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<b>Bachelor of Computer Applications</b>				
<b>Semester I</b>				
<b>Problem Solving using C Programming Theory</b>				
Course Code	:	B24PSC101	CIE	: 50 Marks
Teaching Hours L:T:P	:	3:0:0	SEE	: 50 Marks
Total Hours	:	45	Total	: 100 Marks
Credits		3	SEE Duration	: 3 Hrs

<b>Course Objectives</b>	
1	To develop skills in solving problem.
2	To obtain knowledge about the structure of the programming language C.
3	To develop the program writing and logical thinking skill

<b>Module – 1</b>	<b>No. of Hrs</b>
<p><b>Problem Solving techniques:</b> Introduction, Problem solving procedure, Algorithm: Steps involved in algorithm development. Algorithms for simple problems: To find largest of three numbers, factorial of number, check for prime number, check for palindrome, Count no. of odd, even and zeros in list of integers.</p> <p><b>Flowcharts:</b> Definition, advantages, Symbols used in flow charts. Flowcharts for simple problems mentioned in algorithms. Pseudo code.</p>	09
<b>Module – 2</b>	<b>No. of Hrs</b>
<p><b>Introduction to C:</b> Overview of C Program, Importance of C Program, Basic structure of a C program, Execution of C Program.</p> <p><b>Constants, Variables &amp; Data types:</b> Character set, C token, Keywords &amp; identifiers, Constants, Variables, data types, Declaration of variables, assigning values to variables, defining symbolic constants.</p> <p><b>Operators and Expression:</b> Arithmetic, Relational, logical, assignment, increment &amp; decrement, conditional, bit wise &amp; special operators, evaluation of expressions, Precedence of arithmetic operators, type conversions in expressions, operator precedence &amp; Associativity, built in mathematical functions.</p>	09
<b>Module – 3</b>	<b>No. of Hrs</b>
<p><b>Managing Input and Output operations:</b> Reading &amp; writing a character, formatted input and output.</p> <p><b>Decision Making and Branching:</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.</p> <p><b>Decision making and looping:</b> The while statement, the do statement, for statement, exit, break, jumps in loops</p>	09
<b>Module – 4</b>	<b>No. of Hrs</b>
<p><b>Arrays:</b> Declaration, initialization &amp; access of one dimensional &amp; two-dimensional array. Programs using one- and two-dimensional arrays- sorting and searching arrays</p> <p><b>Handling of Strings:</b> Declaring &amp; initializing string variables, reading strings from terminal, writing strings to screen, Arithmetic operations on characters, String Handling functions, table of strings</p> <p><b>User defined functions:</b> Need for user defined functions, Declaring, defining and calling C functions return values &amp; their types</p> <p><b>Categories of functions:</b> With/without arguments, with/without return values. Nesting of functions</p>	09
<b>Module – 5</b>	<b>No. of Hrs</b>
<p><b>Structures, union and Pointers:</b> Structure definition, giving values to members, structure initialization, comparison of structure variables, arrays of structures, arrays within structures,</p>	09





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Structure and functions, structures within structures. <b>Unions.</b> <b>Pointers:</b> Understanding pointers, accessing the address of a variable, declaring & initializing pointers, accessing a variable through its pointer, pointer expression, pointer increments & scale factor, passing pointer variables as function arguments.	
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<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	Describe the C Programming language which includes the structure of a C program, Tokens, Expressions, Operators etc.
CO2	Demonstrate conditional and iterative statements to write C programs
CO3	Construct the C programs that use pointers to access arrays and strings.
CO4	Illustrate the user defined functions to solve real time problems

<b>Text Books</b>	
1	Balagurusamy E, 2017, Programming in ANSI C, 7th edition, Tata McGraw –Hill Education Private Limited, New Delhi.
2	Reema Thareja, Computer Fundamentals and Programming in C – 2nd Edition, Oxford University, 2017
3	Brian W. Kernighan and Dennis M. Ritchie, the ‘C’ Programming Language, Prentice Hall of India
4	Yashavanth Kanetkar, Let us C, Authentic Guide to C Programming Language, bpb publisher, 17 <sup>th</sup> Edition, 2020
<b>Reference Text Books</b>	
1	Byron S. Gottfried, 2010. Programming with C, 3rd edition, Tata McGraw – Hill Publications, New Delhi.

<b>Web links and Video lectures (e-Resources)</b>		
<b>Resources</b>		
1. <a href="http://people.scs.carleton.ca/~mjhinek/W13/COMP2401/notes/Arrays_and_Pointers.pdf">http://people.scs.carleton.ca/~mjhinek/W13/COMP2401/notes/Arrays_and_Pointers.pdf</a>		
2. <a href="https://www.tutorialspoint.com/cprogramming/c_functions.htm">https://www.tutorialspoint.com/cprogramming/c_functions.htm</a>		
3. <a href="http://www.circuitstoday.com/control-structures-in-c-and-cpp">http://www.circuitstoday.com/control-structures-in-c-and-cpp</a>		
<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
Sl. No	Components	Marks
1	<b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom’s Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.	30
2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
<b>MAXIMUM MARKS</b>		50

**CO-PO Mapping:**

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	-	3	-	1	-	1	-	-	2
CO2	3	3	3	-	2	-	2	-	1	-	-	2
CO3	3	2	2	-	3	-	1	-	-	2	-	1
CO4	3	3	3	-	2	-	2	-	1	-	-	3



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<b>Bachelor of Computer Applications</b>				
<b>Semester I</b>				
<b>Fundamentals of Mathematics</b>				
<b>Theory</b>				
Course Code	:	B24FOM103	CIE	: 50 Marks
Teaching Hours L:T:P	:	3:0:0	SEE	: 50 Marks
Total Hours	:	45 H	Total	: 100 Marks
Credits	:	3	SEE Duration	: 3 Hrs

<b>Course Objectives</b>	
1	The Curriculum supports the prerequisites to enhance their Mathematical knowledge towards understanding mathematical Concepts in the concerned fields.
2	Enhance problem-solving skills using mathematical models and algorithms.
3	Develop logical reasoning and analytical thinking
4	Understand the mathematical foundations of computer science, including discrete mathematics and graph theory
5	Apply mathematical concepts to computer science problems, such as algorithm design and analysis.

<b>Module – 1</b>	<b>No. of Hrs</b>
<b>Introduction to Number System:</b> Overview of number systems: Binary numbers, Number based conversion, Octal and hexadecimal numbers, Complements.	09
<b>Module – 2</b>	<b>No. of Hrs</b>
<b>Propositional Logics:</b> Mathematical logic introduction-statements Connectives-negation, conjunction, disjunction- statement formulas and truth tables- conditional and bi Conditional statements- tautology contradiction.	09
<b>Module – 3</b>	<b>No. of Hrs</b>
<b>Set Theory:</b> Operations on sets, power set, Venn diagram, Cartesian product, relations, functions- types of functions - composition of functions.	09
<b>Module – 4</b>	<b>No. of Hrs</b>
<b>Matrix algebra:</b> Introduction, Types of matrices-matrix operations, transpose of a matrix, determinant of matrix, inverse of a matrix, Cramer’s rule.	09
<b>Module – 5</b>	<b>No. of Hrs</b>
<b>Differential calculus:</b> Functions and limits - Simple Differentiation of Algebraic Functions – Evaluation of First and Second Order Derivatives – Maxima and Minima.	09

<b>Text Books</b>	
1	M. MORRIS MANO, Digital Logic and Computer Design, Professor of Engineering California State University, Los Angeles.
2	Kenneth H. Rosen , Discrete mathematics and its applications, Monmouth University (And formerly AT&T Laboratories).
<b>Reference Text Books</b>	
1	Dr. D.S.Chandrasekharaiah, Discrete Mathematical Structures, PRISM Books P Ltd.

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
Sl. No	Components	Marks
1	<b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom’s Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.	30



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2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
	MAXIMUM MARKS	50

<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	Understand and convert between binary, octal, and hexadecimal number systems
CO2	Apply propositional logic to create and interpret truth tables
CO3	Perform operations on sets and analyze functions using Venn diagrams
CO4	Conduct matrix operations and solve linear equations using matrices
CO5	Differentiate algebraic functions and apply calculus to find maxima and minima.

**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	2	1	2	1	1	1	-	-	-
CO2	2	2	2	1	1	3	1	1	1	-	-	-
CO3	1	1	1	1	2	3	1	2	-	-	-	1
CO4	1	2	2	2	1	3	-	-	-	-	-	-
CO5	2	2	2	1	2	1	-	1	1	1	-	1



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<b>Bachelor of Computer Applications</b>					
<b>Semester I</b>					
<b>Fundamentals of Accountancy</b>					
<b>Theory</b>					
Course Code	:	B24FOA103	CIE	:	50 Marks
Teaching Hours L:T:P	:	3:0:0	SEE	:	50 Marks
Total Hours	:	45 H	Total	:	100 Marks
Credits	:	3	SEE Duration	:	3 Hrs

<b>Course Objectives</b>	
1	Understand Core Accounting Concepts: Equip students with foundational knowledge of accounting principles, processes, and standards, enabling them to accurately record and report financial transactions.
2	Apply Practical Accounting Skills: Develop students' ability to manage various accounting tasks, such as journalizing, ledger posting, and bank reconciliation, ensuring they can effectively handle real-world financial data.

<b>Module – 1</b>	<b>No. of Hrs</b>
<b>MEANING AND SCOPE OF ACCOUNTING:</b> History and Development of Accounting, Meaning, Objectives and functions of Accounting, Book keeping V/s Accounting, Users of accounting data, systems of book keeping and accounting, branches of accounting, advantages and limitations of accounting.	09
<b>Module – 2</b>	<b>No. of Hrs</b>
<b>ACCOUNTING PRINCIPLES:</b> Meaning of accounting principles, accounting concepts, account conventions, accounting principles and the institute of chartered accounts of India, Statements of accounting standards.	09
<b>Module – 3</b>	<b>No. of Hrs</b>
<b>FINANCIAL ACCOUNTING PROCESS:</b> Journalizing transactions: Journals, Rules of Debit and Credit, Compound Journal Entry, Opening Entry. Ledger posting and trial balance: Ledger, Posting, Relationship between journal and ledger, Rules regarding posting, Trial Balance.	09
<b>Module – 4</b>	<b>No. of Hrs</b>
<b>SUB-DIVISION OF JOURNALS &amp; NEGOTIABLE INSTRUMENTS:</b> <b>Sub-division of journals:</b> Cash Journal, Petty Cash Book, Purchase Journal, Sales Journal, Sales Return Journal. <b>Negotiable Instruments:</b> Promissory Note, Specimen of Promissory note, Bill of Exchange, Cheque, Some Important Terms, Accounting Entries, Billes sent for collection, Accommodation Bills, Bills receivable and payable books.	09
<b>Module – 5</b>	<b>No. of Hrs</b>
<b>BANK RECONCILIATION STATEMENT:</b> Advantages of keeping a bank account, causes of difference, Meaning and Objectives of bank reconciliation statement, Importance of bank reconciliation statement, Technique of preparing bank reconciliation statement, where cash book balance has to be adjusted, Where the abstract from the Cash Book and Pass Book are given.	09

<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	Explain the key functions of accounting and differentiate between bookkeeping and accounting.
CO2	Describe core accounting principles and apply relevant accounting standards.
CO3	Record transactions in journals and post them to ledgers accurately.
CO4	Manage different types of journals and understand the accounting of negotiable instruments
CO5	Prepare a bank reconciliation statement and identify discrepancies between bank and cash records





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<b>Text Books</b>	
1	Dr S N Maheshwari, CA Sharad K Maheshwari & Dr Suneel K Maheshwari, An Introduction to Accountancy, 12/e, Vikas Publishing.
<b>Reference Text Books</b>	
1	Ashok Banerjee, "Fundamentals of Financial Accounting" Publisher: Excel Books
2	S K Bhattacharyya, John Dearden & S Venkatesh, Accounting for Management: Text and Cases, 3/e, Vikas Publishing

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
Sl. No	Components	Marks
1	<b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.	30
2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
<b>MAXIMUM MARKS</b>		50

**CO-PO Mapping**

<b>PO \ CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>CO1</b>	1	1	1	2	1	3	1	1	-	-	-	-
<b>CO2</b>	2	2	2	3	1	1	1	1	-	-	-	-
<b>CO3</b>	3	1	1	2	2	1	1	-	-	-	-	-
<b>CO4</b>	1	2	1	3	1	2	-	-	-	-	-	-
<b>CO5</b>	2	2	3	1	3	1	2	1	-	-	-	-



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<b>Bachelor of Computer Applications</b>				
<b>Semester I</b>				
<b>Indian Knowledge System</b>				
<b>Theory</b>				
Course Code	:	B24IKS104	CIE	: 50 Marks
Teaching Hours L:T:P	:	2:0:0	SEE	: 50 Marks
Total Hours	:	25 H	Total	: 100 Marks
Credits	:	2	SEE Duration	: 1 Hrs

<b>Course Objectives</b>	
1	To facilitate the students with the concepts of Indian traditional knowledge and to make them understand the Importance of roots of knowledge system.
2	To make the students understand the traditional knowledge and analyze it and apply it to their day-to-day life.

<b>Module – 1</b>	<b>No. of Hrs</b>
<b>Introduction to Indian Knowledge Systems (IKS):</b> Overview, Vedic Corpus, Philosophy, Character scope and importance, traditional knowledge vis-a-vis indigenous knowledge, traditional knowledge vs. western knowledge.	09
<b>Module – 2</b>	<b>No. of Hrs</b>
<b>Traditional Knowledge in Humanities and Sciences:</b> Linguistics, Number and measurements Mathematics, Chemistry, Physics, Art, Astronomy, Astrology, Crafts and Trade in India and Engineering and Technology	09
<b>Module – 3</b>	<b>No. of Hrs</b>
<b>Traditional Knowledge in Professional domain:</b> Town planning and architecture Construction, Health, wellness and Psychology-Medicine, Agriculture, Governance and public administration, United Nations Sustainable development goals.	09

<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	Provide an overview of the concept of the Indian Knowledge System and its importance.
CO2	Appreciate the need and importance of protecting traditional knowledge.
CO3	Recognize the relevance of Traditional knowledge in different domains.
CO4	Establish the significance of Indian Knowledge systems in the contemporary world.

<b>Text Books</b>	
1	Introduction to Indian Knowledge System- concepts and applications, B Mahadevan, Vinayak Rajat Bhat, Nagendra Pavana R N, 2022, PHI Learning Private Ltd, ISBN-978-93-91818-21-0
2	Traditional Knowledge System in India, Amit Jha, 2009, Atlantic Publishers and Distributors (P) Ltd., ISBN-13: 978-8126912230
3	Knowledge Traditions and Practices of India, Kapil Kapoor, Avadesh Kumar Singh, Vol1, 2005, DK Print World (P) Ltd., ISBN 81-246-0334

<b>Web links and Video lectures (e-Resources)</b>	
<b>Resources:</b>	
1. <a href="https://www.youtube.com/watch?v=LZP1StpYEPM">https://www.youtube.com/watch?v=LZP1StpYEPM</a>	
2. <a href="http://nptel.ac.in/courses/121106003/">http://nptel.ac.in/courses/121106003/</a>	
3. <a href="https://unctad.org/system/files/official-document/ditcted10_en.pdf">https://unctad.org/system/files/official-document/ditcted10_en.pdf</a>	
4. <a href="http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf">http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf</a>	
5. <a href="https://unfoundation.org/what-we-do/issues/sustainable-developmentgoals/?gclid=EAIaIQobChMIInp-Jtb_p8gIVTeN3Ch27LAmPEAAAYASAAEgIm1vD_BwE">https://unfoundation.org/what-we-do/issues/sustainable-developmentgoals/?gclid=EAIaIQobChMIInp-Jtb_p8gIVTeN3Ch27LAmPEAAAYASAAEgIm1vD_BwE</a>	



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<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
<b>Sl. No</b>	<b>Components</b>	<b>Marks</b>
1	<p><b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating).</p> <p>THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.</p>	30
2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
<b>MAXIMUM MARKS</b>		50

**CO-PO Mapping:**

<b>PO \ CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>CO1</b>	2	1	1	2	3	2	1	-	-	-	-	-
<b>CO2</b>	3	3	3	1	1	3	1	2	-	-	-	-
<b>CO3</b>	2	2	2	2	1	3	1	-	-	-	-	-
<b>CO4</b>	1	3	3	2	3	1	-	1	-	-	-	-



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<b>Semester I</b>					
<b>Bachelor of Computer Applications</b>					
<b>ಬಳಕೆ ಕ್ಷೇತ್ರ - baLake Kannada (Kannada for Usage)</b>					
<b>Theory</b>					
ವಿಷಯ ಸಂಕೇತ	:	B24BKA105	CIE	:	50 Marks
ಬೋಧನಾ ಅವಧಿ/ವಾರಕ್ಕೆ, (L:T:P:S)	:	2:1:0:0	SEE	:	50 Marks
ಒಟ್ಟು ಬೋಧನಾ ಅವಧಿ	:	30 H	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

<b>Course Objectives</b>	
1	ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರುವುದರಾದ ಕನ್ನಡ ಭಾಷೆ, ಸಹಿತಾ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು
2	ಕನ್ನಡ ಸಹಿತಾ ದ ಪರಿಧಾನ ಭಾಗವಾದ ಆಧುನಿಕಪೂವಿ ಮತ್ತು ಆಧುನಿಕ ಕ್ಷವಾ ಗಳನ್ನನ ಪರಿಚಯಿಸುವುದು
3	ವಿದ್ಯಾರ್ಥಿಗಳಿಲ ಸಹಿತಾ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರವು ಹಾಗೂ ಆಸ್ತು ಯನ್ನನ ಮೂಡಿಸುವುದು.
4	ತಾಂತ್ರಿಕ ವಾಕ್ಯ ಗಳ ಪರಿಚಯವನ್ನನ ಹಾಗೂ ಅವರುಗಳ ಸಧಿಸಿದ ವಿಷಯಗಳನ್ನನ ಪರಿಚಯಿಸುವುದು
5	ಸಾಂಸ್ಕೃತಿಕ, ಜಿನ್ನದ ಹಾಗೂಪರ ವಾಸ್ ಕಥನಗಳ ಪರಿಚಯಮಾಡಿಕೊಡುವುದು.

<b>Module – 1 ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷೆ ಕುರಿತದ ಲೇಖನಗಳ</b>		<b>No. of Hrs</b>	
1. ಕನಾಟ್ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರಾಜಯಾ 2. ಕನಾಟ್ ದ ಏಕೀಕರಣ : ಒಂದು ಅಪೂವಿ ಚರಿತ್ರರ - ಜಿ. ವಾಂಕಣ್ಣಬಬ ಯಾ 3. ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಎಲ್. ತಿಮ್ಮೋಶ ಮತ್ತು ಪ್ರೋ. ವಿ. ಕೇಶವಮೂರ್ತಿ	06		
<b>Module – 2 ಆಧುನಿಕ ಪೂವಿದ ಕ್ಷವಾ ಭಾಗ</b>		<b>No. of Hrs</b>	
1. ವಚನಗಳು : ಬನ್ನಣಣ , ಅಕಕ ಮಹಾದೇವಿ, ಅಲ್ಲ ಮಪರ ಭು, ಆಯದ ಕ್ತಕ ಮಾರಯಾ , ಜೇಡರದ್ಯಸಿಮಯಾ , ಆಯದ ಕ್ತಕ ಲ್ಕಕ ಮಮ . 2. ಕ್ತೋತಿನೆಗಳು : ಅದರಾಂದೇನ್ನ ಫಲ್ ಇದರಾಂದೇನ್ನ ಫಲ್ – ಪುರಂದರದ್ಯಸು ತಲ್ಲ ಣಿಸ್ಸಿರು ಕಂಡಾ ತಳು ಮನ್ನೇ - ಕನ್ನದ್ಯಸು 3. ತತವ ಪದಗಳು : ಸವಿರ ಕೊಡಗಳ ಸುಟ್ಟಟ - ಶಿಶುನಾಳ ಶರೋಫ		06	
<b>Module – 3 ಆಧುನಿಕ ಕ್ಷವಾ ಭಾಗ</b>		<b>No. of Hrs</b>	
1. ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮಮ ನ್ ಕಗೆ ದಿಾಂದ ಅಯದ ಕ್ಕಲ್ಪ ಭಾಗಗಳು 2. ಕುರುಡು ಕ್ಷಾಂಚಾಣ : ದ್ಯ.ರಾ. ಬಾಂದ್ರ 3. ಹೊಸ್ಲಿನ್ ಗೋತ್ರ : ಕುವಾಂಪು 4. ಮಬ್ಬ ನಾಂದ ಮಬ್ಬ ಬಗೆ : ಜಿಎಸ್ ಶಿವರುದರ ಪಪ 5. ಚೋಮನ್ ಮಕಕ ಳ ಹಾಡು : ಸಿದದ ಲಾಂಗಯಾ	06		



**MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST**  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>Module – 4 ತಾಂತ್ರಿಕ ಕವಾಕ್ತುಗಳ ಪರಿಚಯ</b>	<b>No. of Hrs</b>
1. ಡಾ. ಸ್ವ. ವಾಂ. ವಿಶ್ವ ಿಶೇಷವ ರಯಾ : ವಾಕ್ತು ಮತ್ತು ಐತಿಹಾ - ಎ. ಎನ್. ಮೂರ್ತಿರಾವ್ 2. ಕರಕುಶಲ್ ಕಲೆಗಳು ಮತ್ತು ಪರಿಪರಿಯ ವಿಜ್ಞಾನ : ಕರೋಗೌಡ ಬೋಚಿನ್ಪಿ	06
<b>Module – 5 ಸಾಂಸ್ಕೃತಿಕ, ಜನ್ಮದ ಕಥೆ ಮತ್ತು ಪರಿವಾಸ್ ಕಥೆ</b>	<b>No. of Hrs</b>
1. ಯುಗಾದಿ : ವಸುಧಾಂದರ 2. ಮಗ್ಗನೆ ಎಂಬ ಗಿರಜನ್ ಪವಿತ : ಹಿ.ಚಿ. ಬೋರಲಿಂಗಯಾ	06

<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	ಕನ್ನಡ ಭಾಷೆ, ಸಹಿತಾ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವುಮಾಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಹಿತಾದ ಆಧುನಿಕ ಪೂವಿ ಮತ್ತು ಆಧುನಿಕ ಕ್ಷವಾಗಳನ್ನನು ಸಾಂಕೇತಿಕವಾಗಿ ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕ ಸ್ಪಷ್ಟತೆ ತಿಮೂಡುತ್ತದೆ.
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಹಿತಾ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಯನ್ನನು ಹೆಚ್ಚಿಸುತ್ತದೆ.
CO4	ತಾಂತ್ರಿಕ ಕವಾಕ್ತುಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಿದ್ಧಿಸಿದ ವಿಷಯಗಳನ್ನನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿನ ತರವಾಕ್ತುಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌಶಲಕೃತಿ ಹೆಚ್ಚಿಸುತ್ತದೆ.
CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನ್ಮದ ಹಾಗೂ ಪರಿವಾಸ್ ಕಥೆಗಳ ಪರಿಚಯಮಾಡಿಕೊಡುವುದು.

<b>Text Books</b>	
1	ಪರ್ವಾ ಪುಸ್ತಕ : ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯಾ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮ ಿಶೇಷ, ಪರಿವಾಸ್, ವಿಶ್ವ ಿಶೇಷವ ರಯಾ ತಾಂತ್ರಿಕ ವಿಶವ ವಿದ್ಯಾ ಲ್ಯ, ಬೆಳಗಾವಿ.
2	ವಿಶೇಷ ಸ್ಪಷ್ಟನೆ : 1. ಮೇಲಿನ ಪರ್ವಾ ಕರ ಮಕ್ಕಕ ಸೋಮಿತವಾಗಿ ಅಂತಿಮ ಪರಿಶೀಲನಾ ಯ ಪರಿಶ್ಲ ಪರಿಶೀಲನೆ ಇರುತ್ತದೆ.

**CO-PO Mapping**

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	1	2	1	2	1	-	-	-	-	-
CO2	1	3	1	1	1	1	1	2	-	-	-	-
CO3	2	2	2	2	1	1	1	-	-	-	-	-
CO4	1	3	1	1	1	1	-	1	-	-	-	-
CO5	2	1	2	2	2	2	-	-	1	1	-	1





MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

Semester I				
Bachelor of Computer Applications				
ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ - Samskruthika Kannada (Kannada for Usage)				
Theory				
ವಿಷಯ ಸಂಕೇತ	:	B24SKK105	CIE	: 50 Marks
ಬೋಧನಾ ಅವಧಿ/ವಾರಕ್ಕೆ, (L:T:P:S)	:	2:1:0:0	SEE	: 50 Marks
ಒಟ್ಟು ಬೋಧನಾ ಅವಧಿ	:	30 H	Total	: 100 Marks
Credits	:	2	SEE Duration	: 3 Hrs

Course Objectives	
1	To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
2	To enable learners to Listen and understand the Kannada language properly.
3	To speak, read and write Kannada language as per requirement.
4	To train the learners for correct and polite conversation.
5	To know about Karnataka state and its language, literature and General information about this state.

Module – 1	No. of Hrs
<b>1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.</b> <b>2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conversation, Listening and Speaking Activities, Key to Transcription</b> <b>3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು- Personal Pronouns, Possessive Forms, Interrogative words</b>	06
Module – 2	No. of Hrs
<b>1. ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ಪೆ ಶ್ನ ಗಳು ಮತ್ತು ಸಂಬಂಧವಾಚಕ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive question and Relative nouns</b> <b>2. ಗುಣ, ಪರಮಾಣ ಮತ್ತು ವ್ಯಾಪ್ತಿ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾ ವಾಚಕಗಳು Qualitative, Quantitative and Colour Adjectives, Numerals</b> <b>3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು -ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ - (ಆ, ಅದು, ಅವು, ಅಲ್ಲಿ) - Predictive Forms, Locative Case</b>	06
Module – 3	No. of Hrs
<b>1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cases, and Numerals</b> <b>2. ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು -Ordinal numerals and Plural markers</b> <b>3. ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು &amp; ವರ್ಣ ಗುಣವಾಚಕಗಳು - Defective/Negative Verbs &amp; Colour Adjectives</b>	06
Module – 4	No. of Hrs
<b>1. ಅಪ್ಪಣೆ/ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತ್ತು ಒತ್ತಾಯ ಆರ್ಥರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು Permission,</b>	



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

Commands, encouraging and Urging words (Imperative words and sentences) 2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು Accusative Cases and Potential Forms used in General Communication	06
<b>Module – 5</b>	<b>No. of Hrs</b>
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳು - Different types of Tense, Time and Verbs 2. ದ್, ತ್, ತು, ಇತು, ಆಗಿ, ಅಲ್ಲ, ಗ್, ಕ್, ಇದೆ. ಕ್ರಿಯಾ ಪ್ರತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು ವತ್ಮಾನ್ ಕ್ಷಲ ವಾಕಯ ರಚನೆ - Formation of Past, Future and Present Tense Sentences with Verb Forms Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation	06

<b>Course Outcomes: At the end of the course, the students will be able to</b>	
CO1	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
CO4	To Listen and understand the Kannada language properly.
CO5	To speak in polite conversation.

<b>Text Books</b>	
1	ಫುಡ ಕಲಿಕೆಗಾಗಿ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

<b>RUBRIC FOR THE SEMESTER END EXAMINATION (SEE)</b>		
Sl. No	Contents	Marks
	<b>PART A</b>	
1.	Module 1 to 5: Q. No 1 or 20 ( Fill in the blanks)	20
	<b>PART B</b>	
2	Module 1 to 5: Q. No 1 or 20 ( MCQ)	820
	<b>MAXIMUM MARKS</b>	100

**CO-PO Mapping**

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	1	2	1	2	1	-	-	-	-	-
CO2	1	3	1	1	1	1	1	2	-	-	-	-
CO3	2	2	2	2	1	1	1	-	-	-	-	-
CO4	1	3	1	1	1	1	-	1	-	-	-	-
CO5	2	1	2	2	2	2	-	-	1	1	-	1



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>Bachelor of Computer Applications</b>					
<b>Semester I</b>					
<b>Professional Communication Skills</b>					
<b>Theory</b>					
Course Code	:	B24PCS106	CIE	:	50 Marks
Teaching Hours L : T : P	:	2:0:0	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

<b>Course Objectives</b>	
1	To enable the students to understand the skills required for effective communication at different levels of an organization
2	To enhance listening, note and presentation skills
3	To build communication skills among the students required for Digital Platforms
4	To build Business Correspondence Skills among the students.

<b>Module – 1</b>	No. of Hrs
<b>FUNDAMENTALS OF COMMUNICATION SKILLS:</b> Introduction - Meaning of Communication; Objectives of Communication; Process of Communication; Principles of Communication; Effective Communication vs perfect Communication; Barriers to Effective Communication; Types of Communication (Meaning & Features) Interpersonal, Intrapersonal, Upward, Downward, Internal, External, Lateral, One-way, Two-way. (Communication in an organization) Cross Cultural Communication; Meaning; Scope of cross-cultural communication skills; Limitations of Communication skills in business. Verbal and Non-Verbal, Formal & Informal communication Skills	06
<b>Module – 2</b>	No. of Hrs
<b>COMMUNICATION SKILLS:</b> Listening skills: Meaning; Importance of Listening; Types of listening (Meaning & Benefits of types of Listening) –Comprehension, Critical, Attentive, Reflective, Discriminative, Biased, Evaluative; Listening Process; Barriers to listening skills; Overcoming from barriers to listening. Reading skills – Meaning; Importance of Reading Skills; Reading comprehension skills – Inferential, Literal, Evaluative, Types of Reading Techniques: Skimming, Scanning, Intensive, Extensive and Guidelines for improving good Reading Skills. Note-taking skills: Meaning; Importance of note taking; Methods of note making. Presentation skill: Presentation skills & its importance in Business Communication; Types.	06
<b>Module – 3</b>	No. of Hrs
<b>COMMUNICATION MEDIA AND PLATFORMS:</b> Communication Media/Channel: Meaning Importance of Communication Channels; Types of Communication Medium / channels: (a) Physical Media – Meaning & its Types. (b) Mechanical Media – Meaning & its Types. (c) Push and Pull Channels – Meaning and its Features. Communication Platform: Internal & External Platforms – Meaning and importance Internal communication Platforms – Intranet, Blogosphere, Portals, You tube, Google Hangouts, Skype, Webcasts and zoom. External Communication Platforms: Corporate Website, Face book, Twitter, LinkedIn, You tube Accounts, Corporate Blog. (Each of the types only Meaning and Importance to be discussed) Technology in Business Communication: Introduction, Advantages & disadvantages of technology in communication.	06
<b>Module – 4</b>	No. of Hrs
<b>COMMUNICATION SKILLS &amp; ETHICS:</b> Introduction - Meaning; Importance of ethical communication; Ethical Communication & Business. Ethical perspectives – Utilitarian, Universalistic, Religious, Economic, Legal, Humanistic, Dialogic, Situational perspectives in relation to business. Ethical issues in business communication – Respect, Honesty, Sensitivity to	06



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

Cultural Differences. Ethical dilemmas involved in business communication – Whistle blowing, Rumors & Gossip, Secrecy, Ambiguity, Lying.	
<b>Module – 5</b>	No. of Hrs
<b>BUSINESS CORRESPONDENCE:</b> Writing Skills - Art of Condensation (Precis writing), Essay writing – Types of essays, features of an essay, Paragraph writing – structure of paragraph writing. Business Letters – Meaning; Importance and Advantages of Business Letters; Letter components and Layout. Different Types of Business Letters. (a) Letters of Inquiries (b) Replies to Inquiries (c) Orders (d) Complaints & Adjustment Letters (e) Collection Letters & etc.	06

<b>Course Outcomes:</b> At the end of the course, the students will be able to	
CO1	Understand the skills required for effective communication at different levels of an organization.
CO2	Enhance themselves with good listening, note taking and presentation skills
CO3	Build good communication skills among the students required for Digital Platforms.
CO4	Efficiently Manage with Business Correspondence Skills among the students

<b>Text Books</b>	
1	Communication Skills, Phillip Learning - FL.
2	Taylor, Shirley, Communication for Business: A Practical Approach, Pearson Education
3	C.S. Raydu, Corporate Communication, HPH
<b>Reference Text Books</b>	
1	Rai & Rai, Business Communication, HPH
2	S.P. Sharman, Bhavani.H, Corporate Communication, VBH
3	K. Venkataramana, Corporate Communication, SHBP
4	Rajkumar, Basic Business Communication: Concepts, Applications and Skills, Excel Books
5	Peter URS Bender, Robert. A.Traez, Secrets of Face to Face Communication, Macmillan India

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
Sl. No	Components	Marks
1	<b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom’s Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating).  THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.	30
2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
<b>MAXIMUM MARKS</b>		50

**CO-PO Mapping:**

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	1	2	1	2	-	-	-	-	-	1
CO2	2	1	1	1	2	1	-	-	-	-	-	1
CO3	1	2	1	1	2	2	-	-	-	1	-	-
CO4	2	2	1	1	2	1	-	-	-	-	-	-



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

Bachelor of Computer Applications					
Semester I					
Programming in C Laboratory					
Practical					
Course Code	:	B24PCL107	CIE	:	50 Marks
Teaching Hours L : P : S	:	1:2:0	SEE	:	50 Marks
Total Hours	:	14 Sessions	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

Course Objectives	
1	Write C programs to perform basic operations such as calculations, comparisons, and data manipulation.
2	Implement and demonstrate control structures like loops, conditionals, and switch-case statements in C.
3	Manipulate arrays and strings, including operations like finding duplicates, reversing, and applying string functions.
4	Demonstrate the use of pointers for advanced operations like swapping numbers and matrix manipulation, and work with structures to manage complex data types.

S.No	Experiments
1.	Print the value of y for given x=2 & z=4 and analyze the output. a. y = x++ + ++x; b. y= ++x + ++x; c. y= ++x + ++x + ++x; d. y = x>z; e. y= x>z? x:z; f. y = x&z;
2.	Program to read two numbers and find the largest (demonstration on if else).
3.	Program to read percentage of marks and to display appropriate message (demonstration of switch case statement).
4.	Program to read numbers from keyboard continuously till the user presses 999 and to find the sum of only positive numbers (demonstration of do-while loop).
5.	Write a program to print sums of even numbers and sum of odd numbers from array of positive integers (demonstration of 1D array).
6.	Program to implement built-in string functions.
7.	Program to demonstrate call by value and call by reference.
PART-B	
1	Program to demonstrate library functions in math.h (demonstration of built-in functions).
2	Program to find the roots of quadratic equation (demonstration of else-if ladder)..
3	Program to read a number, find the sum of the digits, reverse the number and check it for palindrome (demonstration of while loop).
4	Program to generate n Fibonacci sequence (demonstration of for loop).
5	Program to perform addition and subtraction of Matrices (demonstration of 2D array).
6	Program to check a number for prime by defining <b>isprime()</b> function (demonstration of user-defined function).
7	Program to accept USN, Student Name, marks of any 6 Subjects and calculate total marks, Percentage, grade and print the all the details in marks card format of a particular student (demonstration of structure).





MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (PRACTICAL)</b>	
<b>Components</b>	<b>Marks</b>
<p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 40% of maximum marks in the semester-end examination (SEE). In total of CIE and SEE student has to secure 50% maximum marks of the course.</p>	100
<p><b>CIE marks for the practical course is 50 Marks</b></p> <ul style="list-style-type: none"> <li>• The split-up of CIE marks for record/ journal and test are in the ratio 60:40.</li> <li>• Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.</li> <li>• Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.</li> <li>• Total marks scored by the students are scaled down to 30 marks (60% of maximum marks).</li> <li>• Weightage to be given for neatness and submission of record/write-up on time.</li> <li>• Department shall conduct 02 tests for 50 marks, the first test shall be conducted after the 8th week of the semester and the second test shall be conducted after the 14 week of the semester.</li> <li>• In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.</li> <li>• The suitable rubrics can be designed to evaluate each student's performance and learning ability.</li> <li>• The average of 02 tests is scaled down to 20 marks (40% of the maximum marks). The Sum of scaled-down marks scored in the report write-up/journal and average marks of two tests is the total CIE marks scored by the student.</li> </ul>	50
<b>MAXIMUM MARKS</b>	50

<b>RUBRIC FOR THE SEMESTER END EXAMINATION (SEE)</b>	
<b>Components</b>	<b>Marks</b>
<ul style="list-style-type: none"> <li>• SEE marks for the practical course is 50 Marks. SEE shall be conducted jointly by the two examiners of the same institute; examiners are appointed by the University.</li> <li>• All laboratory experiments are to be included for practical examination. (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.</li> <li>• Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.</li> <li>• Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners. General rubrics suggested for SEE is mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)</li> <li>• Change of experiment is allowed only once and 10% Marks allotted to the procedure part to be made zero.</li> <li>• The duration of SEE is 03 hours</li> </ul>	100
<b>MAXIMUM MARKS</b>	100



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**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>Course Outcomes:</b> At the end of the course, the students will be able to	
CO1	Develop the C Program which includes the structure of a C program, Tokens, Expressions, Operators etc
CO2	Demonstrate conditional and iterative statements to write C programs
CO3	Construct C programs that use arrays and strings
CO4	Design user defined functions to solve real time problems
CO5	Demonstration of Structure concepts & Pointers

**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2	3	-	-	-	-	-	-	-
CO2	3	2	3	2	2	-	-	-	-	-	-	-
CO3	2	2	3	2	2	-	-	-	-	-	-	-
CO4	3	2	3	2	3	-	-	-	-	-	-	-
CO5	2	3	3	3	3	-	-	-	-	-	-	-



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>Bachelor of Computer Applications</b>					
<b>Semester I</b>					
<b>Essentials of Computer Laboratory</b>					
<b>Practical</b>					
Course Code	:	B24ECL108	CIE	:	50 Marks
Teaching Hours L : P : S	:	1:2:0	SEE	:	50 Marks
Total Hours	:	14 SESSIONS	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

<b>Course Objectives</b>	
1	Learn to identify computer peripherals and components, assemble and disassemble them, and troubleshoot basic hardware issues.
2	Gain skills in installing various operating systems, configuring system settings, and maintaining the system using built-in tools.
3	Develop proficiency in using word processors, spreadsheets, presentation software, and internet browsers for various tasks.
4	Acquire the ability to edit multimedia content and create flowcharts using Flow algorithm software for basic programming tasks

S.No	Experiments																																				
1.	Word Processor assignment to demonstrate usage of Page Setup, Page Background and Paragraph option of Page Layout tab by writing the description about Computer and its characteristics.																																				
2.	Word Processor assignment to demonstrate Bullets and Numbering, Headers and footers																																				
3	Word Processor assignment to demonstrate usage of mail merge by creating a letter to invite your parents for the annual day event. Prepare at least 5 letters																																				
4	Word Processor assignment to demonstrate usage of tables and encryption by preparing the timetable																																				
5	<p>Demonstrate usage of formulas and charts in spreadsheet as directed below:</p> <p>a. Create a spreadsheet with following components:</p> <table border="1" style="margin-left: 40px; border-collapse: collapse; width: 80%;"> <thead> <tr> <th>SL No</th> <th>Student Name</th> <th>Sub 1</th> <th>Sub 2</th> <th>Sub 3</th> <th>Total</th> <th>Percentage</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>b. Insert the name and marks of 3 subjects of 5 or more students.</p> <p>c. Calculate total marks obtained and percentage.</p> <p>d. Calculate the grade by applying following criteria:</p> <p>i. If percentage <math>\geq 90</math>, then grade A</p> <p>ii. If percentage <math>\geq 75</math> and <math>&lt; 90</math>, then grade B</p> <p>iii. If percentage <math>\geq 60</math> and <math>&lt; 75</math>, then grade C</p> <p>iv. If percentage <math>\geq 50</math> and <math>&lt; 60</math>, then grade D</p> <p>v. If percentage <math>&lt; 50</math>, then grade E</p> <p>d. Insert column charts for various subjects</p> <p>e. Insert pie chart for one student depicting composition of 3 subject marks.</p>	SL No	Student Name	Sub 1	Sub 2	Sub 3	Total	Percentage	Grade																												
SL No	Student Name	Sub 1	Sub 2	Sub 3	Total	Percentage	Grade																														
6	<p>Demonstrate usage of data validation in the spreadsheet as directed below:</p> <p>a. Create a spreadsheet with following components:</p> <table border="1" style="margin-left: 40px; border-collapse: collapse; width: 90%;"> <thead> <tr> <th>Emp No</th> <th>Emp Name</th> <th>Gender</th> <th>Designation</th> <th>DOB</th> <th>Age</th> <th>Basic Salary</th> <th>DA</th> <th>HRA</th> <th>Gross Salary</th> <th>Deduction</th> <th>Net Salary</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Insert 5 employee details in the columns Emp No., Emp Name, DOB, Basic Salary.</p> <p>b. Add drop-down data validation for Gender and Designation columns</p>	Emp No	Emp Name	Gender	Designation	DOB	Age	Basic Salary	DA	HRA	Gross Salary	Deduction	Net Salary																								
Emp No	Emp Name	Gender	Designation	DOB	Age	Basic Salary	DA	HRA	Gross Salary	Deduction	Net Salary																										



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**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

	<p>c. Add a formula to calculate Age based on DOB</p> <p>d. Add the formula to calculate</p> <p style="margin-left: 20px;">i. DA as 35% of Basic salary,</p> <p style="margin-left: 20px;">ii. HRA as 25% of Basic salary</p> <p style="margin-left: 20px;">iii. Deduction as 10% of Basic salary</p> <p>e. Add the formula to calculate Gross Salary and Net Salary</p>																		
7	<p>Demonstrate conditional formatting in spreadsheet as directed below:</p> <p>a. Create an attendance spreadsheet for 10 students.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>USN</th> <th>Name</th> <th>Date 1</th> <th>Date 2</th> <th>Date 3</th> <th>-</th> <th>Date N</th> <th>No. of Classes Attended</th> <th>Attendance Percentage</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>b. Mark P for present and A for absent for respective dates.</p> <p>c. Apply formula to calculate “No. of classes attended” and “Attendance Percentage” columns.</p> <p>d. Apply conditional formatting to highlight a student if “Attendance Percentage” is less than 85%.</p>	USN	Name	Date 1	Date 2	Date 3	-	Date N	No. of Classes Attended	Attendance Percentage									
USN	Name	Date 1	Date 2	Date 3	-	Date N	No. of Classes Attended	Attendance Percentage											
8	<p>Create a power-point presentation to demonstrate the following:</p> <p style="margin-left: 20px;">a. Layout option</p> <p style="margin-left: 20px;">b. Insertion of date, time and slide numbers</p> <p style="margin-left: 20px;">c. Insertion of Symbols</p>																		
9	<p>Create a power-point presentation to demonstrate the following:</p> <p style="margin-left: 20px;">a. Themes</p> <p style="margin-left: 20px;">b. Transitions</p> <p style="margin-left: 20px;">c. Animation</p>																		
10	<p>Create a power-point presentation to demonstrate the following:</p> <p style="margin-left: 20px;">a. Rehearse Timings</p> <p style="margin-left: 20px;">b. Narrations</p> <p style="margin-left: 20px;">c. Slide Sorter.</p>																		

Course Outcomes: At the end of the course, the students will be able to	
CO1	Understand the identification, assembly language, disassembly and basic troubleshooting of computer hardware components, including peripherals, CPUs and system hardware
CO2	Gain hands on experience with networking basics including LAN and Wifi setup and configurations
CO3	Develop practical skills in installing and configuring various operating system including windows Unix/Linux and dual booting along with system maintenance using BIOS setting, Registry Editor and third party tools
CO4	Enhance proficiency in using office productivity software including word processors spreadsheets presentation tools and multimedia editing software
CO5	Apply logical thinking to create flowcharts and perform tasks using flowgarithms software for arithmetic operations shape calculations and understanding arrays and recursion



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (PRACTICAL)</b>	
<b>Components</b>	<b>Marks</b>
<p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 40% of maximum marks in the semester-end examination (SEE). In total of CIE and SEE student has to secure 50% maximum marks of the course.</p>	100
<p><b>CIE marks for the practical course is 50 Marks.</b></p> <ul style="list-style-type: none"> <li>• The split-up of CIE marks for record/ journal and test are in the ratio 60:40.</li> <li>• Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.</li> <li>• Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.</li> <li>• Total marks scored by the students are scaled down to 30 marks (60% of maximum marks).</li> <li>• Weightage to be given for neatness and submission of record/write-up on time.</li> <li>• Department shall conduct 02 tests for 50 marks, the first test shall be conducted after the 8th week of the semester and the second test shall be conducted after the 14 week of the semester.</li> <li>• In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.</li> <li>• The suitable rubrics can be designed to evaluate each student's performance and learning ability.</li> <li>• The average of 02 tests is scaled down to 20 marks (40% of the maximum marks). The Sum of scaled-down marks scored in the report write-up/journal and average marks of two tests is the total CIE marks scored by the student.</li> </ul>	50
<b>MAXIMUM MARKS</b>	50

<b>RUBRIC FOR THE SEMESTER END EXAMINATION (SEE)</b>	
<b>Components</b>	<b>Marks</b>
<ul style="list-style-type: none"> <li>• SEE marks for the practical course is 50 Marks. SEE shall be conducted jointly by the two examiners of the same institute; examiners are appointed by the University.</li> <li>• All laboratory experiments are to be included for practical examination. (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.</li> <li>• Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.</li> <li>• Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners. General rubrics suggested for SEE is mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)</li> <li>• Change of experiment is allowed only once and 10% Marks allotted to the procedure part to be made zero.</li> <li>• The duration of SEE is 03 hours</li> </ul>	100
<b>MAXIMUM MARKS</b>	100





MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**  
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**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO1</b>	3	1	3	1	3	-	-	-	-	-	-	-
<b>CO2</b>	1	2	3	2	2	-	-	-	-	-	-	-
<b>CO3</b>	2	2	3	1	2	-	-	-	-	-	-	-
<b>CO4</b>	1	2	3	2	2	-	-	-	-	-	-	-
<b>CO5</b>	2	1	3	1	2	-	-	-	-	-	-	-



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<b>Bachelor of Computer Applications</b>					
<b>Semester I</b>					
<b>Environmental Studies</b>					
<b>VAC</b>					
Course Code	:	B24ENS109	CIE	:	50 Marks
Teaching Hours L : T : P	:	0:2:0	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	1	SEE Duration	:	1 Hr

<b>Course Objectives</b>	
1	To explore methods for the sustainable use and conservation of resources such as water, soil, minerals, and biodiversity
2	To explore the social, economic, and ethical dimensions of environmental issues.

<b>Module – 1</b>	<b>No. of Hrs</b>
<p><b>Introduction to Environmental Studies:</b> Multidisciplinary nature of environmental studies. Scope and importance; Concept of sustainability and sustainable development.</p> <p><b>Ecosystems:</b> What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems:</p> <p>a) Forest ecosystem            b) Grassland ecosystem            c) Desert ecosystem            d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)</p> <p><b>Natural Resources:</b> Renewable and Non-Renewable Resources</p> <p>a) Land resources and land-use change; Land degradation, soil erosion and desertification.            b) Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.            c) Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (International &amp; Inter-state).            d) Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.</p>	06
<b>Module – 2</b>	<b>No. of Hrs</b>
<p><b>Biodiversity and Conservation</b></p> <p>a) Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hotspots.            b) India as a mega-biodiversity nation; Endangered and endemic species of India.            c) Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.            d) Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.</p>	06
<b>Module – 3</b>	<b>No. of Hrs</b>
<p><b>Environmental Pollution</b></p> <p>a) Environmental Pollution: Types, causes, effects and controls; Air, water, soil and noise pollution.            b) Nuclear hazards and human health risks.            c) Solid waste management, Control measures of urban and industrial waste.            d) Pollution case student system; Banking complaints and Ombudsman</p>	06
<b>Module – 4</b>	<b>No. of Hrs</b>
<p><b>Environmental Policies and Practices</b></p> <p>a) Climate change, global warming, ozone layer depletion, acid rain and impacts on human</p>	



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**

(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

<p>communities and agriculture.</p> <p>b) Environment Laws: Environment Protection Act; Air (Prevention &amp; Control of Pollution) Act; Water (Prevention and Control of Pollution) Act; Wildlife (Protection) Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).</p> <p>c) Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.</p>	06
<b>Module – 5</b>	<b>No. of Hrs</b>
<p><b>Human Communities and the Environment</b></p> <p>a) Human population growth: Impacts on environment, human health and welfare.</p> <p>b) Resettlement and rehabilitation of project affected persons; case studies.</p> <p>c) Disaster management: Floods, Earthquake, Cyclones and Landslides.</p> <p>d) Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.</p> <p>e) Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.</p> <p>f) Environmental communication and public awareness, case studies (e.g., CNG vehicles in cities).</p>	06

<b>Course Outcomes:</b> At the end of the course, the students will be able to	
CO1	To understand the roles and responsibilities of various stakeholders in environmental management and policy-making.
CO2	To teach the principles and practices of natural resource conservation and management.
CO3	To provide an understanding of the structure and function of natural ecosystems and the relationships between organisms and their environment.
CO4	To analyze the impact of human activities on the environment, including urbanization, industrialization, deforestation, and climate change.

<b>Text Books</b>	
1	Bharucha, E. (2015). Textbook of Environmental Studies.
2	Carson, R. (2002). Silent Spring. Houghton Mifflin Harcourt.
3	Climate Change: Science and Politics. (2021). Centre Science and Environment, New Delhi
4	Gadgil, M., & Guha, R. (1993). This Fissured Land: An Ecological History of India. Univ. of California Press

<b>RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)</b>		
Sl. No	Components	Marks
1	<p><b>INTERNAL TESTS:</b> Students will be evaluated in test, descriptive questions with different complexity levels (Bloom’s Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating).</p> <p>THREE tests will be conducted. Each test will be evaluated for 50 Marks. Finally Test Marks Will Be Reduced To 30 Marks.</p>	30
2	Assignment/Quiz/Seminar/Group Discussion/Case Studies/Practical orientation on Design Thinking/ problem Solving Exercises/Presentation of Research work/hack-a-thon/Code-a-thon conducted by reputed organizations/ any other.	Any two 20
<b>MAXIMUM MARKS</b>		50



MOOGAMBIGAI CHARITABLE EDUCATIONAL TRUST  
**Rajarajeswari College of Engineering**  
(An Autonomous Institution Under Visvesvaraya Technological University, Belagavi)

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**CO-PO Mapping:**

<b>PO CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>CO1</b>	3	3	1	1	3	-	-	-	-	-	-	-
<b>CO2</b>	3	2	1	2	1	1	-	-	-	-	-	-
<b>CO3</b>	1	1	1	1	2	1	-	-	-	-	-	-
<b>CO4</b>	1	3	1	1	2	1	-	-	-	-	-	-