



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

I & II Semester Scheme and Syllabus

(2026 Scheme)

VISION

To empower young minds through technology, research and innovation, to produce technically competent and socially responsible professionals in higher education.

MISSION

1. To deliver excellence in education through innovative teaching, impactful research, and continuous skill development, preparing students to meet global challenges with technical expertise and ethical responsibility.
2. To foster a transformative learning environment that integrates technology, research and practical experience, empowering students to become skilled professionals and socially conscious leaders.
3. To cultivate a culture of lifelong learning and professional excellence by encouraging creativity, research, and community engagement, equipping students with the skills to thrive in a dynamic world.
4. To provide a holistic educational experience that combines advanced technology, hands-on research, and community-focused learning, shaping students into competent, ethical professionals who contribute positively to society.

QUALITY POLICY

Rajarajeswari College of Engineering is committed to imparting quality technical education that nurtures competent, ethical professionals with global relevance. We ensure academic excellence through a dynamic, outcome-based curriculum, experienced faculty, and cutting-edge infrastructure. Continuous improvement is driven by innovation, research and strong industry collaboration. We foster holistic development and a progressive environment that supports lifelong learning, teamwork, and professional growth.

CORE VALUES

Academic Excellence, Integrity, Innovation, Global Competence, Continuous Improvement.

Bachelor of Computer Applications

DEPARTMENT VISION

To be a department of excellence in technical education, widely known for the development of application developers, IT professionals, entrepreneurs, researches creates benefit all of humanity.

DEPARTMENT MISSION

1. To ensure diverse knowledge integration with industry for creative learning and application.
2. To nurture talent in usage of application of Digital Intelligence and use of Power of technology.
3. To create entrepreneurs thro incubating technology businesses and committee to create and sustaining to be societal relevant education
4. To ensure the student connect at personal level and focus on to holistic development with Intellectual, Emotional, Spiritual and Behavioral traits.

PROGRAM OUTCOMES (POs)

PO 1 Knowledge: Able to understand and apply the fundamental principles, concepts and methods in diverse areas of computer applications, mathematics, statistics etc.,

PO 2 Problem analysis and Development of Solutions: Identify, formulate, research literature and analyze real- time problems. Attain substantiated conclusions to solve the problems using fundamental principles of mathematics, computing sciences by adopting various tools and techniques.

PO 3 Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required.

PO 4 Ethics and Social Responsibility: Understand and commit to professional ethics and cyber regulations, responsibilities and norms of professional computing practice.

PO 5 Communication and Team Building: Possess interpersonal skills and communicate effectively with the professionals and with society at large on system activities. Able to comprehend and write effective reports, design documentation, make effective presentations, and give/understand instructions.

PO 6 Project Management and Finance: Innovation, Employability and Entrepreneurial skills Identify opportunity; pursue that opportunity to create value and wealth for the betterment of the individual and society at large. Develop the capacity to study and research independently that will help to develop skills for transition to employment in hardware/software companies.

PO 7 Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO 8 Life Long Learning: Recognize the need and have the ability, to engage in continuous reflective learning in the context of technological advancement. Create, select, adapt and apply appropriate techniques, resources, and computing tools to complex computing activities. Able to learn, adapt and apply emerging tools and technologies to meet the demand.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To progress into the software industry, academia, research, entrepreneurial pursuit, government, consulting firms, and other recent trends in technology enabled services.

PEO2: To achieve peer recognitions an individual or team; by adopting ethics and professionalism and communicating effectively to perform well in cross-culture and interdisciplinary teams.

PEO3: To continue lifelong professional development in computing for the benefit of self- and societal growth

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Understand the principles of Computer Applications and enrich knowledge in recent advancements and developments in Software Industries.

PSO2: Competent in programming and computing skills, ability to apply software development methodologies and modeling to solve real world problems.

PSO3: To motivated the Students to learn through various programs about emerging technologies.

PSO4: To impart comprehensive knowledge with equal emphasis on theory and practice.

PSO5: To train future industry professionals.

INDEX

I Semester			
Sl. No.	Course Code	Course Title	Page No.
1	B26BCA101	Computer Fundamentals	1
2	B26BCA102	Programming Using C	5
3	B26BCA103	Fundamentals of Mathematics	7
4	B26BCA104	Fundamentals of Accountancy	9
5	B26BCA105A	Samskrutika Kannada	11
6	B26BCA105B	Balake Kannada	13
7	B26BCA106	Communication English	15
8	B26BCAL107	Programming Using C Laboratory	17
9	B265BCA108	Environmental Studies	19

II Semester			
Sl. No.	Course Code	Course Title	Page No.
1	B26BCA201	Unix and Shell Scripting	21
2	B26BCA202	Data Structures Using C	24
3	B26BCA203	Discrete Mathematical Structure	26
4	B26BCA204	Introduction to Web Technologies	28
5	B26BCA205	Introduction to Fintech	30
6	B26BCA206	Constitution of India	32
7	B26BCAL207	Data Structure Using C Laboratory	34
8	B26BCAL208	Web Technologies Laboratory	36



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 – 2026 Scheme

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

I SEMESTER

Academic Year 2026-27

Sl. No	Course Category and Course Code		Course Title	TD / PSB	Teaching Hours / Semester				Examination				Credits
					Lecture	Tutorial	Practical	TW + SL	CIE Marks	SEE Marks	Total marks	SEE Duration in hours	
					L	T	P	S					
1.	IPCC	B26BCA101	Computer Fundamentals	BCA	42	0	28	50	50	50	100	3	4
2.	PCC	B26BCA102	Programming Using C	BCA	42	0	0	48	50	50	100	3	3
3.	PCC	B26BCA103	Fundamentals of Mathematics	BCA	42	0	0	48	50	50	100	3	3
4.	PCC	B26BCA104	Fundamentals of Accountancy	BCA	42	0	0	48	50	50	100	3	3
5.	AEC	B26BCA105A / B	Samskrutika Kannada / Balike Kannada	BCA	28	0	0	32	50	50	100	1	2
6.	AEC	B26BCA106	Communication English	BCA	28	0	0	32	50	50	100	1	2
7.	PCCL	B26BCAL107	Programming Using C Laboratory	BCA	0	0	28	02	50	50	100	3	2
8.	VBC	B265BCA108	Environmental Studies	BCA	14	0	0	16	50	50	100	1	1
TOTAL									400	400	800		20

DSC – Discipline-Specific Core Course, MDEC/OEC - Multidisciplinary Elective Course/Open Elective Course, AEC-Ability Enhancement Course, SEC- Skill Enhancement Courses, VBC-Value Based Course, MNC: Mandatory Non- Creditcourse(Students have to qualify for the award of the bachelor's degree).

HOD

Dean-Academics

Principal



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 – 2026 Scheme
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

II SEMESTER

Academic Year 2026-27

Sl.No	Course Category and Course Code		Course Title	TD / PSB	Teaching Hours / Semester				Examination				Credits
					Lecture	Tutorial	Practical	TW + SL	CIE Marks	SEE Marks	Total marks	SEE Duration in hours	
					L	T	P	S					
1.	IPCC	B26BCA201	Unix and Shell Scripting	BCA	42	0	28	50	50	50	100	3	4
2.	PCC	B26BCA202	Data Structures Using C	BCA	42	0	0	48	50	50	100	3	3
3.	PCC	B26BCA203	Discrete Mathematical Structure	BCA	42	0	0	48	50	50	100	3	3
4.	AEC	B26BCA204	Introduction to Web Technologies	BCA	42	0	0	48	50	50	100	3	3
5.	AEC	B26BCA205	Introduction to Fintech	BCA	28	0	0	32	50	50	100	1	2
6.	SEC	B26BCA206	Constitution of India	BCA	14	0	0	16	50	50	100	1	1
7.	PCCL	B26BCAL207	Data Structure Using C Laboratory	BCA	0	0	28	02	50	50	100	3	2
8.	PCCL	B26BCAL208	Web Technologies Laboratory	BCA	0	0	28	02	50	50	100	3	2
TOTAL									400	400	800		20

DSC – Discipline-Specific Core Course, MDEC/OEC - Multidisciplinary Elective Course/Open Elective Course, AEC-Ability Enhancement Course, SEC- Skill Enhancement Courses, VBC-Value Based Course, MNC: Mandatory Non- Creditcourse(Students have to qualify for the award of the bachelor's degree).

HOD

Dean-Academics

Principal



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

SEMESTER - I					
COMPUTER FUNDAMENTALS					
Category: IPCC					
Course Code	:	B26BCA101	CIE	:	50 Marks
Teaching Hours L:T:P:S	:	42:0:28:50	SEE	:	50 Marks
Total Hours / Semester	:	120	Total	:	100 Marks
Credits	:	4	SEE Duration	:	3 Hrs

Course Learning Objective is	
1	Understand the fundamentals of computers and data representation.
2	Understand computer architecture and data manipulation.
3	Explain operating system concepts and process management
4	Understand computer networks and office productivity tools.
5	Explain file-system concepts and storage management.

Module – 1	No. of Hrs
Introduction to computers: History of Computing, Data Storage: Bits and Their Storage, Main Memory, Mass Storage, Representing Information as Bit Patterns, The Binary System. Data Manipulation: Computer Architecture, Machine Language, Program Execution Arithmetic/Logic Instructions.	09
Module – 2	No. of Hrs
Operating System Fundamentals: The History of Operating Systems, Operating System Architecture, Types of Operating System, Coordinating the Machine's Activities, Handling Competition Among Processes, Security.	09
Module – 3	No. of Hrs
Data Communications & Computer Networks: Components, Data Representation, Data Flow, Network Criteria, Physical Structures, network types, internet history.	08
Module – 4	No. of Hrs
Office Tools: Using office tools, Creating, Saving, Closing, and Opening Office Files, Working with Files, Using the Ribbon, Tabs, and Quick Access Toolbar, Using Context Menus, the Mini Toolbar, and Keyboard Shortcuts, Organizing and Customizing Folders and Files. Usage of office tools	08
Module – 5	No. of Hrs
File-System Interface: File Concept, Access Methods, Directory and Disk Structure, File System Mounting, File Sharing, Protection, File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management, Efficiency and Performance, Recovery.	08



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

LABORATORY

Sl. No	List of 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.	Demonstrate usage of formulas and charts in spreadsheet as directed below: <table><tr><th>SL No</th><th>Student Name</th><th>Sub 1</th><th>Sub 2</th><th>Sub 3</th><th>To tal</th><th>Percentage</th><th>Grade</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Create a spreadsheet with following components: a. Insert the name and marks of 3 subjects of 5 or more students. b. Calculate total marks obtained and percentage. c. Calculate the grade by applying following criteria: 1. If percentage ≥ 90, then grade A 2. If percentage ≥ 75 and < 90, then grade B 3. If percentage ≥ 60 and < 75, then grade C 4. If percentage ≥ 50 and < 60, then grade D 5. If percentage < 50, then grade E d. Insert column charts for various subjects e. Insert pie chart for one student depicting composition of 3 subject marks.	SL No	Student Name	Sub 1	Sub 2	Sub 3	To tal	Percentage	Grade																												
SL No	Student Name	Sub 1	Sub 2	Sub 3	To tal	Percentage	Grade																														
6.	Demonstrate usage of data validation in the spreadsheet as directed below: a. Create a spreadsheet with following components: <table><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><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></table> Insert 5 employee details in the columns Emp No., Emp Name, DOB, Basic Salary. b. Add drop-down data validation for Gender and Designation columns c. Add a formula to calculate Age based on DOB d. Add the formula to calculate i. DA as 35% of Basic salary, ii. HRA as 25% of Basic salary iii. Deduction as 10% of Basic salary e. Add the formula to calculate Gross Salary and Net Salary	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																										
7.	Demonstrate conditional formatting in spreadsheet as directed below: a. Create an attendance spreadsheet for 10 students. <table><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><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> b. Mark P for present and A for absent for respective dates. c. Apply formula to calculate “No. of classes attended” and “Attendance Percentage” columns. d. Apply conditional formatting to highlight a student if “Attendance Percentage” is less than 85%.	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																													



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

8.	Create a power-point presentation to demonstrate the following: a. Layout option b. Insertion of date, time and slide numbers c. Insertion of Symbols
9.	Create a power-point presentation to demonstrate the following: a. Themes b. Transitions c. Animation
10.	Create a power-point presentation to demonstrate the following: a. Rehearse Timings b. Narrations c. Slide Sorter.

Course Outcomes: At the end of the course, the students will be able to	
CO1	Understand basic computer concepts including history, data storage, and data manipulation techniques.
CO2	Learn the fundamentals of operating systems and their role in managing computer resources and security.
CO3	Gain knowledge of data communication principles and computer networking basics.
CO4	Develop proficiency in using office tools for document creation, data management, and presentation
CO5	Explore the structure and management of file systems including file operations, directory structures, and storage management.

Text Books	
1.	J. Glenn Brookshear, "Computer Science: An Overview", Addison-Wesley, Twelfth Edition, 2014
2.	Silberschatz A, Gagne G, Galvin PB. Operating system concepts. Ninth Edition, Wiley; 2012.
3	Cobbaut P. Linux Fundamentals. Samurai Media Limited; 2016.
4	Silberschatz A, Korth HF, Sudarshan S. Database system concepts. Sixth Edition, McGraw Hill; 2010.

Reference Text Books	
1.	Microsoft Office 365: In Practice, 2019 Edition, 1st Edition ISBN10: 1260079902 ISBN13: 9781260079906, By Randy Nordell, Kathleen Stewart, Annette Easton and Pat Graves © 2020

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50/2 = 25
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assessments as per regulations	20	10	
Laboratory	Lab Conduction & Record	Evaluating each expt. for 10 marks	10	25
	Lab Internal Test	50	15	
SEE	Semester End Examination	100	50	50
Total Marks				100



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

SEMESTER END EXAMINATION (SEE):

1. The Question paper for each course contains two parts, Part – A and Part – B.
2. Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
3. Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module.

CO-PO Mapping:

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

Level 3 - High, Level 2 - Moderate, Level 1 - Low



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

SEMESTER I				
PROGRAMMING USING C				
Category: PCC				
Course Code	:	B26BCA102	CIE	: 50 Marks
Teaching Hours L:T:P:S	:	42:0:0:48	SEE	: 50 Marks
Total Hours	:	90	Total	: 100 Marks
Credits	:	3	SEE Duration	: 3 Hrs

Course Objectives	
1	Understand problem-solving techniques, algorithms, flowcharts, and pseudocode.
2	Learn the fundamentals and syntax of C programming.
3	Apply input/output, decision-making, and looping statements in C.
4	Develop programs using arrays, strings, and user-defined functions.
5	Understand and implement structures, unions, and pointers in C.

Module – 1	No. of Hrs
Problem Solving techniques: 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. Flowcharts: Definition, advantages, Symbols used in flow charts. Flowcharts for simple problems mentioned in algorithms. Pseudo code.	09
Module – 2	No. of Hrs
Introduction to C: Overview of C Program, Importance of C Program, Basic structure of a C program, Execution of C Program. Constants, Variables & Data types: Character set, C token, Keywords & identifiers, Constants, Variables, data types, Declaration of variables, assigning values to variables, defining symbolic constants. Operators and Expression: Arithmetic, Relational, logical, assignment, increment & decrement, conditional, bit wise & special operators, evaluation of expressions, Precedence of arithmetic operators, type conversions in expressions, operator precedence & Associativity, built in mathematical functions.	09
Module – 3	No. of Hrs
Managing Input and Output operations: Reading & writing a character, formatted input and output. Decision Making and Branching: 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. Decision making and looping: The while statement, the do statement, for statement, exit, break, jumps in loops	08
Module – 4	No. of Hrs
Arrays: Declaration, initialization & access of one dimensional & two-dimensional array. Programs using one- and two-dimensional arrays- sorting and searching arrays Handling of Strings: Declaring & initializing string variables, reading strings from terminal, writing strings to screen, Arithmetic operations on characters, String Handling functions, table of strings. User defined functions: Need for user defined functions, Declaring, defining and calling C functions return values & their types. Categories of functions: With/without arguments, with/without return values. Nesting of functions	08
Module – 5	No. of Hrs
Structures, union and Pointers: Structure definition, giving values to members, structure initialization, comparison of structure variables, arrays of structures, arrays within structures, Structure and functions, structures within structures. Unions. Pointers: 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.	08



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

Course Outcomes: At the end of the course, the students will be able to	
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

Text Books	
1	Balagurusamy E, 2017, Programming in ANSI C, 7th edition, Tata McGraw –Hill Education Private Limited, New Delhi.
2	Computer Fundamentals and Programming in C – Reema Thareja, 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 th Edition, 2020

Reference Text Books	
1	Byron S. Gottfried, 2010. Programming with C, 3rd edition, Tata McGraw – Hill Publications, NewDelhi.

Web links and Video lectures (e-Resources)	
Resources	
1. http://people.scs.carleton.ca/~mjhinek/W13/COMP2401/notes/Arrays_and_Pointers.pdf	
2. https://www.tutorialspoint.com/cprogramming/c_functions.htm	
3. http://www.circuitstoday.com/control-structures-in-c-and-cpp	

ASSESSMENT STRUCTURE:
 The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Two Assignments	20	10	
SEE	Semester End Examination	100	50	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

- The Question paper for each course contains two parts, Part – A and Part – B.
- Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
- Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module

CO-PO Mapping:

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



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

SEMESTER I					
FUNDAMENTALS OF MATHEMATICS					
Category: PCC					
Course Code	:	B26BCA103	CIE	:	50 Marks
Teaching Hours L:T:P:S	:	42:0:0:48	SEE	:	50 Marks
Total Hours	:	90	Total	:	100 Marks
Credits	:	3	SEE Duration	:	3 Hrs

Course Objectives

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.

Module – 1	No. of Hrs
Introduction to Number System: Overview of number systems: Binary numbers, Number based conversion, Octal and hexadecimal numbers, Complements.	09
Module – 2	No. of Hrs
Propositional Logics: Mathematical logic introduction-statements Connectives-negation, conjunction, disjunction- statement formulas and truth tables- conditional and bi Conditional statements- tautology contradiction.	09
Module – 3	No. of Hrs
Set Theory: Operations on sets, power set, Venn diagram, Cartesian product, relations, functions- types of functions - composition of functions.	08
Module – 4	No. of Hrs
Matrix algebra: Introduction, Types of matrices-matrix operations, transpose of a matrix, determinant of matrix, inverse of a matrix, Cramer's rule.	08
Module – 5	No. of Hrs
Differential calculus: Functions and limits - Simple Differentiation of Algebraic Functions – Evaluation of First and Second Order Derivatives – Maxima and Minima.	08

Text Books	
1	Discrete Mathematical Structures, Dr. D.S.Chandrasekharaiah, PRISM Books P Ltd.
2	Discrete mathematics and its applications / Kenneth H. Rosen, Monmouth University (And formerly AT&T Laboratories).
Reference Text Books	
1	

Web links and Video lectures (e-Resources)

Resources
ASSESSMENT STRUCTURE: The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.
CONTINUOUS INTERNAL EVALUATION (CIE):



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

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assignments as per regulations	20	10	
SEE	Semester End Examination	100	50	50
Grand Total				100

SEMESTER END EXAMINATION (SEE):

1. The Question paper for each course contains two parts, Part – A and Part – B.
4. Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
5. Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module

CO-PO Mapping:

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



Course Objectives	
1	Understand the meaning, scope, objectives, and functions of accounting.
2	Explain accounting principles, concepts, conventions, and standards.
3	Apply the journal, ledger, and trial balance preparation process.
4	Understand sub-division of journals and negotiable instruments.
5	Prepare and analyze Bank Reconciliation Statements (BRS).
Module – 1	
MEANING AND SCOPE OF ACCOUNTING: 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	
Module – 2	
ACCOUNTING PRINCIPLES: Meaning of accounting principles, accounting concepts, account conventions, accounting principles and the institute of chartered accounts of India, Statements of accounting standards.	
09	
Module – 3	
FINANCIAL ACCOUNTING PROCESS: 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.	
08	
Module – 4	
SUB-DIVISION OF JOURNALS & NEGOTIABLE INSTRUMENTS: Sub-division of journals: Cash Journal, Petty Cash Book, Purchase Journal, Sales Journal, Sales Return Journal. Negotiable Instruments: 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.	
08	
Module – 5	
BANK RECONCILIATION STATEMENT: 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.	
08	

9 / 37



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

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

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment1	50	40 (Average of Best two Assessments)	50
	Internal Assessment2	50		
	Internal Assessment3	50		
Self Learning	Two Assignments	20	10	
SEE	Semester End Examination	100	50	50
Grand Total				100

SEMESTER END EXAMINATION (SEE):

- The Question paper for each course contains two parts, Part – A and Part – B.
 - Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
- Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module

CO-PO Mapping

PO CØ	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	1	1	2	1	3	1	1
CO2	2	2	2	3	1	1	1	1
CO3	3	1	1	2	2	1	1	-
CO4	1	2	1	3	1	2	-	-
CO5	2	2	3	1	3	1	2	1



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

SEMESTER I					
ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ					
Category: HSMC					
Course Code	:	B26BCA105A	CIE	:	50 Marks
Teaching Hours L : T : P : S	:	28:0:0:32	SEE	:	50 Marks
Total Hours/Semester	:	60	Total	:	100 Marks
Credits	:	2	SEE Duration	:	1Hr

Course Learning Objective is	
1.	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಪರಿಚಯಿಸುವುದು.
3.	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಪರಿಚಯಿಸುವುದು.
4.	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ
5.	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯಿಸುವುದು.

ಬೋಧನಾ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ / (Teaching-Learning Process-General Instructions) :	
These are sample Strategies; which teacher can use to accelerate the attainment of the course outcomes.	
1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿಸಲು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಪ್ರಸ್ತುತ ಪುಸ್ತಕ ಆಧರಿಸಿ ಬೋರ್ಡ್ ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು. ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್‌ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
2.	ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂಲಗಳನ್ನು ಬಳಸಿಕೊಳ್ಳುವುದು -ಅಂದರೆ ಕವಿ-ಕಾವ್ಯ ಪರಿಚಯದಲ್ಲಿ ಕವಿಗಳ ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ್ತು ಕಥೆ,ಕಾವ್ಯಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳು, ಸಂಭಾಷಣೆಗಳು ಈಗಾಗಲೇ ಇತರ ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷಯಗಳನ್ನು ಪಿ. ಪಿ. ಟಿ. ಡಿಜಿಟಲ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸುವುದು.
3.	ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾನಗಳನ್ನು ಶಿಕ್ಷಕರು ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸಿಕೊಳ್ಳಬಹುದು

ಘಟಕ-1 ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷೆ ಕುರಿತಾದ ಲೇಖನಗಳು	No. of Hours
1.ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪಾ ನಾಗರಾಜಯ್ಯ 2.ಕರ್ನಾಟಕದ ಏಕೀಕರಣ ಒಂದು ಅಪೂರ್ವ ಚರಿತ್ರೆ- ಜಿ. ವೆಂಕಟಸುಬ್ಬಯ್ಯ 3.ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ- ಡಾ.ಲ. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೋವಿ. ಕೇಶವಮೂರ್ತಿ	7
ಘಟಕ-2 ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯಭಾಗ	No. of Hours
1.ವಚನಗಳು-ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ಜೇಡರ ದಾಸಿಮಯ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ 2.ಕೀರ್ತನೆಗಳು-ಅದರಿದೇನು ಫಲ ಇದರಿದೇನು ಫಲ -ಪುರಂದರದಾಸರು,ತಲ್ಲಣಿಸಿದಿರು ಕಂಡ್ಯ ತಾಳುಮನವೇ - ಕನಕದಾಸರು 3.ತತ್ವಪದಗಳು -ಸಾವಿರ ಕೊಡಗಳ ಸುಟ್ಟು -ಶಿಶುನಾಳ ಪರೀಪ್	6
ಘಟಕ -3 ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ	No. of Hours
1.ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂದ ಆಯ್ದ ಕೆಲವು ಭಾಗಗಳು 2.ಕುರುಡು ಕಾಂಚಾಣ -ದ. ರಾ. ಬೇಂದ್ರೆ 3.ಹೊಸಬಾಳಿನ ಗೀತೆ- ಕುವೆಂಪು	5
ಘಟಕ-4 ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ	No. of Hours
ಡಾ. ಸರ್. ಎಂ ವಿಶ್ವೇಶ್ವರಯ್ಯ :ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ A.N ಮೂರ್ತಿರಾವ್ ಕರಕುಶಲ ಕಲೆಗಳು ಮತ್ತು ಪರಂಪರೆಯ ವಿಜ್ಞಾನ ಕರೀಗೌಡ ಬೀಚನಹಳ್ಳಿ	5
ಘಟಕ-5 ಸಾಂಸ್ಕೃತಿಕ ಜನಪದ ಕಥೆ ಮತ್ತು ಪ್ರವಾಸ ಕಥೆ	No. of Hours
1.ಯುಗಾದಿ -ವಸುಧೇಂದ್ರ 2.ಮೆಗಾನೆ ಎಂಬ ಗಿರಿಜನ ಪರ್ವತ -ಹಿ.ಚಿಬೋರಲಿಂಗಯ್ಯ	5

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ

Course Outcomes: At the end of the course, the students will be able to



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

CO1	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಸಾಂಕೇತಿಕವಾಗಿ ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಫೂರ್ತಿ ಮೂಡಿರುತ್ತದೆ
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯು ಹೆಚ್ಚಾಗುತ್ತದೆ
CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳು ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕ ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು

Text Books

University prescribed Text Books:

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ
 ಡಾ.ಹಿ.ಬಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ.ಎಲ್.ತಿಮ್ಮೇಶ
 ಪ್ರಕಟಣೆ:ಪ್ರಸಾರಾಂಗ,
 ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ASSESSMENT STRUCTURE:

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 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall secure a minimum of 40% (40 marks out of 100) in the total of CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment1	50	40 (Average of Best Two Assessments)	50
	Internal Assessment2	50		
	Internal Assessment3	50		
AAT	Any Two Assessments as per regulations	20	10	
SEE	Semester End Examination	50	-	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour.



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

SEMESTER I					
Balake Kannada (Kannada for Usage)					
Category: HSMC					
Course Code	:	B26BCA105B	CIE	:	50 Marks
Teaching Hours L : T : P : S	:	28:0:0:32	SEE	:	50 Marks
Total Hours/Semester	:	60	Total	:	100 Marks
Credits	:	2	SEE Duration	:	1 Hr

Course Learning Objective is/ ಬಳಕೆ ಕನ್ನಡ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು	
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.

Teaching-Learning Process/ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ	
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.	
1.	ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ, ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಷಯ ಸೂಚಿಸಿರುವ ಪಠ್ಯ ಪುಸ್ತಕವನ್ನು ಉಪಯೋಗಿಸಬೇಕು.
2.	ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್‌ಗಳನ್ನು ತಯಾರಿಸಲು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.
3.	ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.
4.	ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮ ಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.
5.	ಭಾಷಾ ಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯ ಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

Module- 1	No. of Hours
1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.	7
2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conversation, Listening and Speaking Activities, Key to Transcription	
3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ /ಸಂಬಂಧಿತ ಸರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು- Personal Pronouns, Possessive Forms, Interrogative words	
Module- 2	No. of Hours
1. ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ಪ್ರಶ್ನೆಗಳನ್ನು ಮತ್ತು ಸಂಬಂಧವಾಚಕ ನಾಮಪದಗಳು-Possessive forms of nouns, dubitive question and Relative nouns	6
2. ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣ ಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾವಾಚಕಗಳು-Qualitative, Quantitative and Color Adjectives, Numerals	
3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು-ಸಪ್ರಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಃ, ಅದು, ಅವು, ಅಲ್ಲಿ)Predictive Forms, Locative Case	
Module- 3	No. of Hours
1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು-Dative Cases, and Numerals	5
2. ಸಂಖ್ಯಾ ಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮ ರೂಪಗಳು-Ordinal numerals and Plural markers	
3. ನ್ಯೂನ ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು ವರ್ಣ ಗುಣವಾಚಕಗಳು-Defective/Negative Verbs & Color Adjectives.	

Module- 4	No. of Hours
1. ಅಪ್ಪಣೆ ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತ್ತು ಒತ್ತಾಯ ಅರ್ಥರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು- Permission, Commands, encouraging and Urging words (Imperative words and sentences)	5
2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು- Accusative Cases and Potential Forms used in General Communication	



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

Module- 5	No. of Hours
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳು-Different types of Tense, Time and Verbs 2. ದ್, -ತ್, -ತ, -ಇತ್, -ಅಗಿ ಅಲ, -, ಗ-, ಕ್- ತ್ತು, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯರಚನೆ-Formation of Past, Future and Present Tense Sentences with Verb Forms	5

Course Outcomes: At the end of the course, the students will be able to	
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.

ಬಳಕೆ ಕನ್ನಡ Dr. L. Thimmasha ಪ್ರಕಟಣೆ: ಪ್ರಸಾರಾಂಗ, ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ASSESSMENT STRUCTURE:

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 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall secure a minimum of 40% (40 marks out of 100) in the total of CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best Two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assessments as per regulations	20	10	
SEE	Semester End Examination	50	-	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour.



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

SEMESTER I					
COMMUNICATION ENGLISH					
Category: AEC					
Course Code	:	B26BCA106	CIE	:	50 Marks
Teaching Hours L : T : P: S	:	28:0:0:32	SEE	:	50 Marks
Total Hours	:	60	Total	:	100 Marks
Credits	:	2	SEE Duration	:	1 Hr

Course Objectives	
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.

Module – 1	No. of Hrs
FUNDAMENTALS OF COMMUNICATION SKILLS: 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
Module – 2	No. of Hrs
COMMUNICATION SKILLS: 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
Module – 3	No. of Hrs
COMMUNICATION MEDIA AND PLATFORMS: 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
Module – 4	No. of Hrs
COMMUNICATION SKILLS & ETHICS: 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 Cultural Differences. Ethical dilemmas involved in business communication – Whistle blowing, Rumors & Gossip, Secrecy, Ambiguity, Lying.	05



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

Module – 5	No. of Hrs
BUSINESS CORRESPONDENCE: 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.	05

Course Outcomes: 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

Text Books	
1	Communication Skills, Fillip Learning - FL.
2	Taylor, Shirley, Communication for Business: A Practical Approach, Pearson Education
3	C.S. Raydu, Corporate Communication, HPH
Reference Text Books	
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

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment1	50	40 (Average of Best two Assessments)	50
	Internal Assessment2	50		
	Internal Assessment3	50		
AAT	Two Assignments	20	10	50
SEE	Semester End Examination	50	-	
Grand Total				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour

CO-PO Mapping:

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



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

SEMESTER 1					
PROGRAMMING USING IN C LABORATORY					
Category: PCCL					
Course Code	:	B26BCAL107	CIE	:	50 Marks
Teaching Hours L: T:P: S	:	0:0:28:02	SEE	:	50 Marks
Total Hours	:	30	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.

Sl. No	List of 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 isprime() 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)

Course Outcomes: 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.

ASSESSMENT STRUCTURE FOR LABORATORY:

- The assessment for each course is equally divided between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each component carrying 50% weightage.
- For both CIE and SEE, the student is required to conduct one experiment each from both Part A and Part B.
- To qualify and become eligible to appear for SEE, in the CIE component, a student must secure a minimum of 40% of 50 marks, i.e., 20 marks.
- To pass the SEE component, a student must secure a minimum of 35% of 50 marks, i.e., 18 marks. A student is deemed to have successfully completed the course if the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Laboratory	Lab Conduction & Record	Evaluating Each Expt. for 10 marks.	15	50
	Laboratory Test – 1	50	15	
	Laboratory Test – 2	50	20	
SEE	Semester End Examination	100	50	50
Total Marks				100

CO-PO Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
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)

SEMESTER I					
ENVIRONMENTAL STUDIES					
Category: VBC					
Course Code	:	B26BCA108	CIE	:	50 Marks
Teaching Hours L : T : P: S	:	14:0:0:16	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	1	SEE Duration	:	1Hr

Course Objectives	
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.

Module – 1	No. of Hrs
Introduction to Environmental Studies: Multidisciplinary nature of environmental studies. Scope and importance; Concept of sustainability and sustainable development. Ecosystems: 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: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) Natural Resources: Renewable and Non-Renewable Resources 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 & Inter-state). d) Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	03
Module – 2	No. of Hrs
Biodiversity and Conservation 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.	03
Module – 3	No. of Hrs
Environmental Pollution 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	03
Module – 4	No. of Hrs
Environmental Policies and Practices a) Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. b) Environment Laws: Environment Protection Act; Air (Prevention & 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). c) Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.	03



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

Module – 5	No. of Hrs
Human Communities and the Environment a) Human population growth: Impacts on environment, human health and welfare. b) Resettlement and rehabilitation of project affected persons; case studies. c) Disaster management: Floods, Earthquake, Cyclones and Landslides. d) Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan. e) Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. f) Environmental communication and public awareness, case studies (e.g., CNG vehicles in cities).	02

Course Outcomes: 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.

Text Books	
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

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment1	50	40 (Average of Best two Assessments)	50
	Internal Assessment2	50		
	Internal Assessment3	50		
Self Learning	Any Two Assessments as per regulations	20	10	
SEE	Semester End Examination	50	-	50
Grand Total				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour

CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	1	1	3	-	-	-
CO2	3	2	1	2	1	1	-	-
CO3	1	1	1	1	2	1	-	-
CO4	1	3	1	1	2	1	-	-



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

SEMESTER II				
UNIX AND SHELL SCRIPTING				
Category: IPCC				
Course Code	:	B26BCA201	CIE	: 50 Marks
Teaching Hours L: T:P:S	:	42:0:28:50	SEE	: 50 Marks
Total Hours/semester	:	120	Total	: 100 Marks
Credits	:	4	SEE Duration	: 3 Hrs.

Course Learning Objectives is	
1	Understand the fundamentals, architecture, and basic commands of UNIX.
2	Explain the UNIX file system, directories, and pathname concepts.
3	Apply file permissions, ownership, links, and security mechanisms in UNIX.
4	Develop shell scripts using variables, conditions, loops, operators, and redirection.
5	Understand UNIX processes, process management, scheduling, and signals

Module – 1	No. of Hrs
Introduction of UNIX - Introduction, History, Architecture, Experience the Unix environment, Basic commands ls, cat, cal, date, calendar, who, printf, tty, sty, uname, passwd, echo, tput, and bc	09
Module – 2	No. of Hrs
UNIX File System- The file, what's in a filename? The parent-child relationship, pwd, the home directory, absolute pathnames, using absolute pathnames for a command, cd, mkdir, rmdir, Relative pathnames, The UNIX file system.	09
Module – 3	No. of Hrs
Basic File Attributes - ls – l, the -d option, File Permissions, chmod, Security and File Permission, users and groups, security level, changing permission, user masks, changing ownership and group, File Attributes, More file attributes: hard link, symbolic link, umask, find.	08
Module – 4	No. of Hrs
Introduction to the Shell Scripting - Introduction to Shell Scripting, Shell Scripts, read, Command Line Arguments, Exit Status of a Command, The Logical Operators && and , exit, if, and case conditions, expr, sleep and wait, while, until, for, \$, @, redirection. The here document, set, trap, Sample Validation and Data Entry Scripts	08
Module – 5	No. of Hrs
Introduction to UNIX System process: Mechanism of process creation. Parent and child process. The ps command with its options. Executing a command at a specified point of time: at command. Executing a command periodically: cron command and the crontab file Signals	08

Course Outcomes: At the end of the course, the students will be able to	
CO1	To help the students to understand effective use of Unix concepts, commands and terminology.
CO2	Understand the UNIX file system.
CO3	Understand UNIX command syntax and semantics and identify, access, and evaluate file permissions.
CO4	Ability to read and understand specifications, scripts and programs
CO5	Analyze Facility with UNIX System Process

Text Books	
1	Unix Concepts & Applications 4th Edition, Sumitabha Das, Tata McGraw Hill References
2	Introduction to Unix Shell Programming by M.G. Venkateshmurthy, Pearson.
3	Unix Shell Programming, Yashwant Kanetkar
Reference Text Books	
1	Unix and shell programming by B.M. Harwani, OXFORD university press.



Web links and Video lectures (e-Resources)

Resources

1. <https://www.geeksforgeeks.org/introduction-linux-shell-shell-scripting/>
2. https://www.tutorialspoint.com/unix/shell_scripting.htm
3. <https://www.shellscript.sh/first.html>

LABORATORY

S.No	List of Experiments
PART-A	
1.	Write a shell script to check positive or negative number.
2.	Write a shell script to find largest of three numbers.
3.	Write a shell script to generate mark-sheet of a student by reading five subject marks, calculate and display total marks, percentage and Class obtained by the student.
4.	Write a shell script to accept a natural number and check for prime or not.
5.	Write a shell script which will generate first n Fibonacci numbers
6.	Write a shell script to find the factorial of a given number.
PART-B	
1	Write a shell script to read n numbers as command arguments & sort them in ascending order.
2	Write a shell script to display all executable files, directories and zero sized files from current directory.
3	Write a shell script to check entered string is palindrome or not
4	Write a shell script to reverse a given string.
5	Demonstration of shell programming using filters (including grep, egrep, fgrep)
6	Write a shell script to count the number of lines, words, and characters in a file.

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50/2 = 25
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any one Assessment as per Regulations	20	10	
Laboratory	Lab Conduction & Record	Evaluating each expt. for 10 marks.	10	25
	Lab Internal Test	50	15	
SEE	Semester End Examination	100	50	50
Total Marks				100



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

SEMESTER END EXAMINATION (SEE):

1. The Question paper for each course contains two parts, Part – A and Part – B.
2. Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
3. Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module.

CO-PO Mapping:

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



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

SEMESTER II				
DATA STRUCTURES USING C				
Category: PCC				
Course Code	:	B26BCA202	CIE	: 50 Marks
Teaching Hours L:T:P:S	:	42:0:0:48	SEE	: 50 Marks
Total Hours/Semester	:	90	Total	: 100 Marks
Credits	:	3	SEE Duration	: 3 Hrs

Course Learning Objective is	
1	Understand the fundamentals, types, and operations of data structures.
2	Apply arrays, searching, and sorting techniques to solve problems efficiently.
3	Implement stacks and queues and understand their applications.
4	Implement linked lists and their basic operations.
5	Understand trees, binary trees, and tree traversal techniques.

Module – 1	No. of Hrs
INTRODUCTION TO DATA STRUCTURES: Definition; Types of data structures - Primitive & Non primitive, Linear and Non-linear; Operations on data structures. Dynamic memory allocation: Static & Dynamic memory allocation; Memory allocation and de-allocation functions - malloc, calloc, realloc and free. Algorithm Specification, Performance Analysis, Performance Measurement Recursion: Definition; Types of recursions; Recursion Technique Examples - GCD, Factorial, Binomial coefficient nCr, Towers of Hanoi; Comparison between iterative and recursive functions.	09
Module – 2	No. of Hrs
ARRAYS: Operations on arrays; Arrays as abstract data types (ADT); Representation of Linear Arrays in memory. Traversing linear arrays; Inserting and deleting elements; Sorting – Selection sort, Bubble sort, Quick sort, Merge sort, Insertion sort; Searching - Sequential Search, Binary search; Iterative and Recursive searching;	09
Module – 3	No. of Hrs
STACKS: Basic Concepts – Definition and Representation of stacks; Operations on stacks; Applications of stacks; Infix, postfix and prefix notations; Conversion from infix to postfix using stack; Evaluation of postfix expression using stack; Application of stack in function calls. QUEUES: Basic Concepts – Definition and Representation of queues; Types of queues – Simple queues, Circular queues, Double ended queues, Priority queues; Operations on Simple queues	08
Module – 4	No. of Hrs
LINKED LIST: Basic Concepts – Definition and Representation of linked list, Types of linked lists- Singly linked list, doubly linked list, Circular linked list, doubly circular linked list; Representation of Linked list in Memory; Operations on Singly linked lists – Traversing, Searching, Insertion, Deletion;	08
Module – 5	No. of Hrs
TREES: Definition; Tree terminologies –node, root node, parent node, ancestors of a node, siblings, terminal & non-terminal nodes, degree of a node, level, edge, path, depth. BINARY TREE: Type of binary trees - strict binary tree, complete binary tree, binary search tree and heap tree; Array representation of binary tree. Traversal of binary tree; preorder, in order and post order traversal.	08



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

Course Outcomes: At the end of the course, the students will be able to	
CO1	Know the types of data structure. Describe the implementation of dynamic memory allocation and recursion
CO2	Describe the implementation of various methods of searching and sorting elements using array.
CO3	Describe the concepts and implement stack and queue. Understand basic operations involved, types and applications.
CO4	Describe basic concepts of linked list. Understand types of linked list and implement basic operations on singly linked list.
CO5	Describe the concepts of tree data structure and traversal techniques on binary tree.

Text Books	
1	Ellis Horowitz and Sartaj Sahni: Fundamentals of Data Structures
2	Tanenbaum: Data structures using C (Pearson Education)
Reference Text Books	
1	Y. Kanitkar: Data Structures Using C (BPB)

Web links and Video lectures (e-Resources)

Resources

1. NPTEL <https://www.nitt.edu/home/academics/departments/cse/programmes>

2. Introduction to Data Structures –Geeks for Geeks

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

CIE	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment1	50	40 (Average of Best two Assessments)	50
	Internal Assessment2	50		
	Internal Assessment3	50		
AAT	Any Two Assessments as per Regulations	20	10	
SEE	Semester End Examination	100	50	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

1. The Question paper for each course contains two parts, Part – A and Part – B.

2. Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.

3. Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module

CO-PO Mapping:

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



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

SEMESTER II					
DISCRETE MATHEMATICAL STRUCTURE					
Category: PCC					
Course Code	:	B26BCA203	CIE	:	50 Marks
Teaching Hours L:T:P:S	:	42:0:0:48	SEE	:	50 Marks
Total Hours/Semester	:	90	Total	:	100 Marks
Credits		3	SEE Duration	:	3 Hrs

Course Objectives	
1	Understand the fundamentals of propositional logic, predicates, quantifiers, and proofs.
2	Apply sets, relations, and functions to solve mathematical problems.
3	Understand and apply mathematical induction and recursion.
4	Apply counting principles, permutations, combinations, and binomial concepts.
5	Understand graphs, graph representations, connectivity, paths, and graph coloring.

Module – 1	No. of Hrs
PROPOSITIONAL LOGICS: Propositional Logic, Applications of Propositional Logic, Propositional Equivalences, Predicates and Quantifiers, Nested Quantifiers, Rules of Inferences, Introduction to Proofs, Proof methods and Strategy.	09
Module – 2	No. of Hrs
SETS, RELATIONS AND FUNCTIONS: Operations on sets, power set, Venn diagram, Cartesian product, Relations and their properties, Closures of Relations, Equivalence Relations, Partial Orderings. Functions, Types of Functions, Inverse and Compositions, The Graphs of Functions.	08
Module – 3	No. of Hrs
INDUCTION AND RECURSION: Mathematical Induction, Strong Induction and Well Ordering, Recursive Definitions and Structural Induction, Recursive Algorithms, Program Correctness.	09
Module – 4	No. of Hrs
COUNTING: The Basics of Counting, The Pigeonhole Principle, Permutations and Combinations, Binomial Coefficients and Identities.	08
Module – 5	No. of Hrs
GRAPHS: Graphs and Graph Models, Graph Terminology and Special Types of Graphs, Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths, Shortest Path Problems, Planar Graphs, Graph Coloring.	08

Course Outcomes: At the end of the course, the students will be able to	
CO1	Understand and Apply Propositional Logic: Grasp the fundamentals of propositional logic, including logical connectives, equivalences, and proof methods.
CO2	Analyze Sets and Relations: Perform operations on sets, visualize relationships using Venn diagrams, and explore various types of relations and functions.
CO3	Develop skills in mathematical induction, recursive definitions, and algorithms, ensuring program correctness
CO4	Apply counting principles, permutations, combinations, and binomial coefficients to solve combinatorial problems.
CO5	Study graph models, terminology, connectivity, and algorithms for paths, planarity, and coloring.

Text Books	
1	Discrete mathematics and its applications / Kenneth H. Rosen, Monmouth University (and formerly AT&T Laboratories).



Reference Text Books

1	J.K Sharma “Discrete Mathematics”, Mac Millian Publishers India, 3rd edition, 2011.
---	---

Web links and Video lectures (e-Resources)

Resources

- https://onlinecourses.nptel.ac.in/noc20_cs82/preview
- https://www.nitt.edu/home/academics/departments/cse/programmes/mtech/curriculum/semester_2/mathematical_foundations_for_com/

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assessments as per Regulations	20	10	
SEE	Semester End Examination	100	50	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

1. The Question paper for each course contains two parts, Part – A and Part – B.
2. Part – A consists of **Short Answer Questions** (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed.
3. Part – B consists of 10 questions, two questions of 16 marks (with max. of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module

CO-PO Mapping:

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



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

SEMESTER II				
INTRODUCTION TO WEB TECHNOLOGIES				
Category: PCC				
Course Code	:	B26BCA204	CIE	: 50 Marks
Teaching Hours L:T:P:S	:	42:0:0:48	SEE	: 50 Marks
Total Hours	:	90	Total	: 100 Marks
Credits	:	3	SEE Duration	: 3 HRS

Course Objectives	
1	Understand the fundamentals of HTML and web technologies.
2	Develop web pages using HTML tables, forms, and CSS.
3	Apply JavaScript, DOM, and form handling in web applications.
4	Understand AngularJS directives, controllers, expressions, and filters.
5	Apply jQuery selectors, events, and effects for interactive web development.

Module – 1	No. of Hrs
Introduction to HTML and Web Technologies: Overview of Web Technologies: Web browsers, web servers, HTTP, and the basics of the World Wide Web (WWW), What is HTML? Purpose and role of HTML in web development, Structure of an HTML Document:<!DOCTYPE HTML>,<HTML>,<HEAD>,<BODY> tags. Basic HTML Tags : <HTML>,<HEAD>,<TITLE>,<BODY><H1> TO <H6>, <P>, , <HR>, Hello HTML5, Loose Syntax Returns, Embracing the reality of Web Markup, Presentational Markup Removed and Redefined, HTML5 Document Structure Changes, Adding Semantics, HTML5's Open Media Effort.	09
Module – 2	No. of Hrs
HTML Tables and Forms and CSS: Table Elements, Formatting a Data Table: Borders, Alignment, and Padding,HTML5 Form Changes, Emerging Elements and Attributes to Support Web Applications, Introduction, CSS Overview, CSS Rules, Example with Type Selectors and the Universal Selector, CSS Syntax and Style, Class Selectors, ID Selectors, span and div Elements, Cascading, style Attribute, style Container, External CSS Files.	09
Module – 3	No. of Hrs
Introduction to JavaScript: Functions, DOM, Forms: CSS Properties, Color Properties, RGB Values for Color, Opacity Values for Color, HSL and HSLA Values for Color, Font Properties, line height Property, Text Properties, Border Properties, Element Box, padding Property, margin Property, History of JavaScript, Hello World Web Page, Buttons, Functions, Variables, Identifiers, Document Object Model.	08
Module – 4	No. of Hrs
Introduction to Angular JS: Forms and How They're Processed: Client-Side Versus Server-Side, form Element, Controls, Text Control, Accessing a Form's Control Values, reset and focus Methods , Introduction to Angular JS, Directives, Expressions, Directives, Controllers, Filters	08
Module – 5	No. of Hrs
Introduction to JQuery, Exploring the Fundamentals of jQuery, Loading and Using jQuery, Usingthe jQuery Library files, selectors, events, exploring jQuery effects	08

Course Outcomes: At the end of the course, the students will be able to	
CO1	Develop HTML5 documents and adding various semantic markup tags.
CO2	Construct Tables and analyze various attributes, values and types of CSS.
CO3	Implement core constructs and develop HTML5 documents using JavaScript.
CO4	AngularJS directives, expressions, controllers, and filters for building dynamic web applications
CO5	Explain the use of JQuery concepts.



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

Text Books	
1	HTML & CSS: Design and Build Websites by Jon Duckett (Free Chapters Available Online)
2	HTML5 for Web Designers by Jeremy Keith (Free PDF Available)
3	HTML & CSS: The Complete Reference Thomas A. Powell, Fifth Edition, Tata McGraw Hill
4	WEB PROGRAMMING with HTML5, CSS and JavaScript, John Dean, Jones & Bartlett Learning, First Edition
5	AngularJS: Up and Running by Shyam Seshadri and Brad Green (Free PDF Available)
6	Learning jQuery by Jonathan Chaffer and Karl Swedberg (Free PDF Available)
Reference Text Books	

Web links and Video lectures (e-Resources)				
https://www.youtube.com/watch?v=9b9pLgaSQuI				
ASSESSMENT STRUCTURE: The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.				
CONTINUOUS INTERNAL EVALUATION (CIE):				
Component	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assessments as per regulations	20	10	
SEE	Semester End Examination	100	50	50
Total Marks				100
SEMESTER END EXAMINATION (SEE): 1.The Question paper for each course contains two parts, Part – A and Part – B. 2.Part – A consists of Short Answer Questions (2 Marks/1 mark) for 20 marks covering the complete syllabus and it is compulsory. Multiple Choice Questions are not allowed. 3.Part-B consists of 10 questions , two questions of 16 marks (with maximum of 3 sub questions) from each module with internal choice. Students shall answer five full questions, selecting one full question from each module.				

CO-PO Mapping:

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



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

SEMESTER II				
INTRODUCTION TO FINTECH				
Category: SEC				
Course Code	:	B26BCA205	CIE	: 50 Marks
Teaching Hours L:T:P:S	:	28:0:0:32	SEE	: 50 Marks
Total Hours/Semester	:	60	Total	: 100 Marks
Credits	:	2	SEE Duration	: 1Hrs

Course Objectives	
1	Understand the fundamentals, evolution, and sectors of FinTech.
2	Explain digital payments, mobile banking, security, and regulations.
3	Understand blockchain, cryptocurrencies, smart contracts, and DeFi.
4	Apply FinTech concepts in digital lending, crowdfunding, and credit assessment.
5	Understand robo-advisory, algorithmic trading, and technology-based wealth management.

Module – 1	No. of Hrs
Introduction to Financial Technology (FinTech): Overview of Financial Technology (History and evolution of FinTech); Role and importance of FinTech in modern finance; Traditional vs digital financial system; Key FinTech sectors (Payments, Lending, Blockchain, Robo-Advisors, InsurTech, RegTech, etc.)	06
Module – 2	No. of Hrs
Digital Payments and Mobile Banking: Introduction to digital payments: Types, methods, and platforms; Mobile payment systems (UPI, PayPal, Google Pay, etc.); Cryptography in payment systems; Security issues in digital payments; Regulatory frameworks and compliance (e.g., GDPR, PCI-DSS)	06
Module – 3	No. of Hrs
Blockchain Technology and Cryptocurrencies: Introduction to Blockchain technology: Concepts and structure; Blockchain use cases in financial services; Cryptocurrencies: Bitcoin, Ethereum, and Altcoins; Cryptocurrency exchanges and wallets; Smart contracts and Decentralized Finance (DeFi); Regulatory challenges and future trends	06
Module – 4	No. of Hrs
Lending and Crowd funding Platforms: Peer-to-peer (P2P) lending platforms; Crowd funding models (Equity-based, Reward-based, etc.); Alternative credit scoring models; Risk assessment and mitigation in lending; Role of Artificial Intelligence (AI) and Machine Learning (ML) in lending.	05
Module – 5	No. of Hrs
Robo-Advisory and Wealth Management: Introduction to Robo-advisors and their role in wealth management; Algorithmic trading and investment strategies; Risk management and portfolio diversification using technology; Regulatory environment for Robo-advisory services; Comparison of traditional vs digital wealth management; Future of FinTech: Trends, challenges, and opportunities	05

Course Outcomes: At the end of the course, the students will be able to	
CO1	Understanding the key sectors and evolution of FinTech in modern finance.
CO2	Gaining knowledge of digital payment systems, security, and regulatory compliance
CO3	Understanding blockchain applications in finance and the role of cryptocurrencies.
CO4	Learning about alternative lending models and risk assessment in digital lending
CO5	Exploring Robo-advisors and their impact on wealth management and investment strategies



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

Text Books	
1	FinTech: The New DNA of Financial Services” by Pranay Gupta and T. Mand
2	Mastering Blockchain: Unlocking the Power of Cryptocurrencies, Smart Contracts, and Decentralized Applications” by Imran Bashir
3	Digital Bank: Strategies to Launch or Become a Digital Bank” by Chris Skinne

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

Component	Type of Assessment	Max. Marks	Max. Marks Scaling down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any Two Assessments as per regulations	20	10	
SEE	Semester End Examinations	50	-	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour.

CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	1	2	-	2	-	1	-
CO2	1	2	1	-	2	-	2	-
CO3	1	1	1	1	1	2	1	-
CO4	1	2	1	2	2	-	2	1
CO5	2	1	1	-	1	-	1	-



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

SEMESTER II					
CONSTITUTION OF INDIA					
Category: VBC					
Course Code	:	B26BCA206	CIE	:	50 Marks
Teaching Hours L:T:P:S	:	14:0:0:16	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	1	SEE Duration	:	1Hr

Course Objectives	
1	To know about the basic structure of Indian Constitution
2	To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3	To know about our Union Government, political structure & codes, procedures
4	To know the State Executive & Elections system of India.
5	To learn the Amendments and Emergency Provisions, other important provisions given by the constitution

Module – 1	No. of Hrs
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.	03
Module – 2	No. of Hrs
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations.	03
Module – 3	No. of Hrs
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.	03
Module – 4	No. of Hrs
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism	03
Module – 5	No. of Hrs
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process. Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.	02

Course Outcomes: At the end of the course, the students will be able to	
CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	Know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

Text Books	
1	“Constitution of India” (for Competitive Exams) - Published by Naidhruva Edutech Learning Solutions, Bengaluru. – 2022.
2	“Introduction to the Constitution of India”, (Students Edition.) by Durga Das Basu (DD Basu): Prentice –Hall, 2008.



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

Reference Text Books

1. “Constitution of India, Professional Ethics and Human Rights” by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition – 2019
2. “The Constitution of India” by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.

ASSESSMENT STRUCTURE:

The assessment in each course is divided equally between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each carrying 50% weightage. To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. To pass the SEE, a student must score at least 35% of 50 marks, i.e., 18 marks. Notwithstanding the above, a student is considered to have passed the course, provided the combined total of CIE and SEE is at least 40 out of 100 marks.

Component	Type of Assessment	Max. Marks	Max. Marks Scaling down to	Total Marks
Theory	Internal Assessment-1	50	40 (Average of Best two Assessments)	50
	Internal Assessment-2	50		
	Internal Assessment-3	50		
AAT	Any one Assessments as per regulations	20	10	
SEE	Semester End Examinations	50	-	50
Total Marks				100

SEMESTER END EXAMINATION (SEE):

SEE paper shall be set for 50 questions, each question carries 01 mark. The pattern of the question paper is MCQ (Multiple Choice Questions). The time allotted for SEE is 01 hour.

CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	1	2	-	2	-	1	-
CO2	1	2	1	-	1	-	2	-
CO3	1	1	2	1	1	1	1	-
CO4	1	1	1	2	2	-	2	1
CO5	1	1	2	-	1	-	1	-



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

SEMESTER II					
DATA STRUCTURE USING C LABORATORY					
Category: PCCL					
Course Code	:	B26BCAL207	CIE	:	50 Marks
Teaching Hours L :P : S	:	0:0:28:02	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

Course Objectives	
1	Develop skills to implement and manipulate arrays using basic operations.
2	Apply recursion techniques to solve computational problems.
3	Implement searching and sorting algorithms using arrays.
4	Implement and apply stacks and queues for data processing.
5	Develop programs using linked lists and binary trees with traversal operations.

S.No	List of Experiments
PART-A	
1.	Write a program to implement and demonstrate the following operations on an array: Insertion, Deletion, Traversing, and Searching.
2.	Write a recursive program to solve Towers of Hanoi problem for n disks
3.	Write a recursive program to calculate the Greatest Common Divisor (GCD) of two numbers.
4.	Write a recursive program to calculate the factorial of a number.
5.	Write a program to implement linear searching technique on an array.
6.	Write a program to implement binary searching technique on an array.
7.	Write a program to implement a stack using an array. Include the operations Push, Pop, and display the current stack.
PART-B	
1	Write a program to implement bubble sort technique.
2	Write a program to implement selection sort technique
3	Write a program to implement insertion sort technique
4	Write a program to convert an infix expression to a postfix expression using stack.
5	Write a program to implement an ordinary queue using an array. Include the operations Enqueue, Dequeue, and Display.
6	Write a program to create a singly linked list and perform the following operations: Insertion at the beginning, Deletion from the beginning, and Traversal of the linked list.
7	Write a program to represent a binary tree and implement Preorder, Inorder, and Postorder traversal methods.

Course Outcomes: At the end of the course, the students will be able to	
CO1	Develop programs to perform insertion, deletion, traversing, searching and sorting operations on arrays.
CO2	Solve problems like Towers of Hanoi, factorial and GCD calculation using recursive programming.
CO3	Implement and manipulate stacks and queues using array
CO4	Represent linked lists and implement insertion and deletion of elements
CO5	Represent binary trees and implement traversal methods such as Preorder, Inorder, and Postorder.



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

ASSESSMENT STRUCTURE FOR LABORATORY:

- The assessment for each course is equally divided between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each component carrying 50% weightage.
- For both CIE and SEE, the student is required to conduct one experiment each from both Part A and Part B.
- To qualify and become eligible to appear for SEE, in the CIE component, a student must secure a minimum of 40% of 50 marks, i.e., 20 marks.
- To pass the SEE component, a student must secure a minimum of 35% of 50 marks, i.e., 18 marks. A student is deemed to have successfully completed the course if the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

CIE	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Laboratory	Lab Conduction & Record	Evaluating Each Expt. for 10 marks	15	50
	Laboratory Test – 1	50	15	
	Laboratory Test – 2	50	20	
SEE	Semester End Examination	100	50	50
Total Marks				100

CO-PO Mapping

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



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

SEMESTER II					
WEB TECHNOLOGIES LABORATORY					
Category: PCCL					
Course Code	:	B26BCAL208	CIE	:	50 Marks
Teaching Hours L : T:P : S	:	0:0:28:02	SEE	:	50 Marks
Total Hours	:	30	Total	:	100 Marks
Credits	:	2	SEE Duration	:	3 Hrs

Course Objectives	
1	Develop basic web pages using HTML5 structure and semantic elements.
2	Design web pages using HTML tables, forms, and CSS styling.
3	Apply JavaScript, events, and DOM manipulation in web applications.
4	Develop applications using AngularJS expressions, directives, controllers, and filters.
5	Implement jQuery selectors, events, and effects for interactive web pages.

Sl. No	List of Experiments
1.	Create a basic HTML5 webpage using HTML document structure.
2.	Create a webpage using headings, paragraphs, line breaks and horizontal lines.
3.	Create a webpage using HTML5 semantic elements.
4.	Create a student information table using HTML.
5.	Create a student registration form using HTML5.
6.	Apply inline, internal and external CSS to a webpage.
7.	Demonstrate CSS class, ID and universal selectors.
8.	Create a webpage demonstrating CSS color, font, text, border, padding and margin properties.
9.	Create a webpage using JavaScript to display "Hello World".
10.	Write a JavaScript program to perform arithmetic operations.
11.	Create a webpage demonstrating JavaScript buttons and events.
12.	Write a JavaScript program to access and modify HTML elements using DOM.
13.	Create a student form and access form control values using JavaScript.
14.	Create an Angular JS webpage using expressions.
15.	Create an Angular JS application using directives and controllers.
16.	Create an Angular JS application demonstrating filters.
17.	Integrate jQuery into an HTML webpage.
18.	Create a jQuery program using selectors.
19.	Create a webpage demonstrating jQuery events.
20.	Create a webpage demonstrating jQuery effects.



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

Course Outcomes: At the end of the course, the students will be able to

CO1	Develop web pages using HTML and HTML5 elements.
CO2	Design and style web pages using CSS, tables, and forms.
CO3	Develop interactive web pages using JavaScript and DOM
CO4	Develop basic web applications using AngularJS.
CO5	Apply jQuery selectors, events, and effects to enhance web pages.

ASSESSMENT STRUCTURE FOR LABORATORY:

- The assessment for each course is equally divided between Continuous Internal Evaluation (CIE) and the Semester End Examination (SEE), with each component carrying 50% weightage.
- For both CIE and SEE, the student is required to conduct one experiment each from both Part A and Part B.
- To qualify and become eligible to appear for SEE, in the CIE component, a student must secure a minimum of 40% of 50 marks, i.e., 20 marks.
- To pass the SEE component, a student must secure a minimum of 35% of 50 marks, i.e., 18 marks. A student is deemed to have successfully completed the course if the combined total of CIE and SEE is at least 40 out of 100 marks.

CONTINUOUS INTERNAL EVALUATION (CIE):

CIE	Type of Assessment	Max. Marks	Max. Marks Scaling Down to	Total Marks
Laboratory	Lab Conduction & Record	Evaluating Each Expt. for 10 marks	15	50
	Laboratory Test – 1	50	15	
	Laboratory Test – 2	50	20	
SEE	Semester End Examination	100	50	50
Total Marks				100

CO-PO Mapping

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