Holy Cross College (Autonomous), Nagercoil

Kanyakumari District, Tamil Nadu.

Nationally Accredited with "A++" by NAAC - V Cycle – CGPA 3.53

Affiliated to

Manonmaniam Sundaranar University, Tirunelveli

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN (UG)

ODD SEMESTER

2025 – 2026

Vision

To provide a high-quality undergraduate education in computer science that prepares students for productive careers and lifelong learning.

Mission

1. To demonstrate proficiency in problem-solving techniques using the computer.
2. To demonstrate proficiency in at least two high-level programming languages and two operating systems
3. To show the ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
4. To show the ability to function effectively on teams to accomplish a common goal.
5. To sensitize the students to the social realities around them with the vision of making them responsible citizen.

Programme Educational Objectives (PEOs)

PEO	Upon completion of UG Degree Programme, the graduates will be able to:
PEO – 1	apply appropriate theory and scientific knowledge to participate in activities that support humanity and economic development nationally and globally, developing as leaders in their fields of expertise.
PEO – 2	inculcate practical knowledge for developing professional empowerment and entrepreneurship and societal services.
PEO – 3	pursue lifelong learning and continuous improvement of the knowledge and skills with the highest professional and ethical standards.

Programme Outcomes (POs)

PO	Upon completion of B.Sc. Degree Programme, the graduates will be able to:
PO – 1	obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science.
PO – 2	create innovative ideas to enhance entrepreneurial skills for economic independence.
PO – 3	reflect upon green initiatives and take responsible steps to build a sustainable environment.
PO – 4	enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career.
PO – 5	communicate effectively and collaborate successfully with peers to become competent professionals.

PO – 6	absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality
PO – 7	participate in learning activities throughout life, through self-paced and self-directed learning to develop knowledge and skills.

Programme Specific Outcomes (PSOs)

PSOs	**Upon completion of the B.Sc. Degree Programme, the graduates will be able to:**
PSO – 1	obtain sufficient knowledge and skills enabling them to undertake further studies in Computer Science and its allied areas on multiple disciplines linked with Computer Science.
PSO – 2	evaluate and apply emerging technologies in computer science to develop innovative solutions for real-world problems
PSO – 3	develop a range of generic skills helpful in team building, problem solving, technical ability, employment, internships, communication and societal activities.
PSO – 4	communicate effectively, work collaboratively, and demonstrate ethical and professional attitudes in diverse settings.
PSO – 5	sensitize various economic issues related to Development, Growth, International Economics, Sustainable Development and Environment

Department : Computer Science
Class : I B.Sc. Computer Science
Title of the Course : Core Course I: Python Programming
Semester : I
Course Code : SU241CC1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU241CC1	**4**	1	–	–	**5**	**5**	**75**	**25**	**75**	**100**

Learning Objectives:

1. To understand the syntax and semantics of Python programming language.
2. To know the usage of usage of modules and files.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	recall python syntax, basic structures and control flow statements.	**K1**
2.	understand to analyze and debug python code.	**K2**
3.	write python scripts to solve specific problems.	**K3**
4.	apply python in creating simple applications or scripts for automation.	**K3**
5.	create reusable python modules or packages for broader use.	**K6**

K1 - Remember; **K2** - Understand; **K3**- Apply; **K6 -** Create

Teaching plan

Total Contact hours: 75 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**Basics of Python Programming and Python Arrays**								
	1	Basics of Python programming: History of Python, Features of Python	2	1	K1(R)	Lecture method, Context based	Lateral Thinking, Group Discussion	Python official docs	MCQs,Oral Presentation, CIA I
	2	Literals, Constants, Variables, Identifiers, Keywords	2		K1(R)	Integrative Teaching, Gamification	Basic lab experiments, Memory game	Video lectures, Interactive PPT	Group Discussion, SlipTest, CIA I
	3	Built-in Data Types, Output statements, Input statements	2		K2(U)	Simulation-based learning, Constructivism	Hands-on training, PPT,	W3Schools, YouTube videos	Brainstorming, Surprise Test, CIA I
	4	Comments, Indentation, Operators	3	1	K2(U)	Integrative teaching, Demonstrative	Brainstorming, Demonstration of Experiments	GeeksFor Geeks	Creative Writing, CIA I
	6	Python Arrays: Defining and Processing Arrays, Array Methods	3	1	K3(Ap), K6(C)	Simulation, Collaboration	Creating and solving Puzzles, Assignment	Programiz, IDE-based practice	Student Presentation, Assignment, CIA I

II	**Control, Iterative and Jump Statements**								
	1	Selection/ Conditional Branching statements: if, if-else	2	1	K2(U)	Lecture Method, Inquiry-based approach	Interaction in the classroom, Brain-storming	Python official docs	Homework, Oral Test, CIA I
	2	nested if and if-elif-else statements	2		K2(U)	Flipped Classroom, Blended Learning	Mind map, Quiz	Tutorials Point	Online Assessment, CIA I
	3	Iterative Statements: while loop, for loop	2		K3(Ap)	Experimental Learning, Collaboration	Simulation, Team Teaching	W3Schools,	Surprise test, Observation note, CIA I
	4	else suite in loop and nested loops	3	1	K3(Ap)	Simulation , Reflective Thinking	PPT, Creating and Solving Puzzles	GeeksFor Geeks	Peer Review, Slip Test, CIA I

	5	Jump Statements: break, continue and pass statements	3	1	K3(Ap)	Constructivism , Cooperative Learning	Role-play, Debate	Programiz, Python Tutor.com	Presentation, MCQs, CIA I
III	**Functions, Function Arguments, Python Strings and Modules**								
	1	Function Definition, Function Call, Variable Scope and its Lifetime, Return Statement	3	1	K2(U)	Demonstrative, Problem Solving, Experimental learning	Practicals, Lateral Thinking	Python official docs, Programiz	Open Book Test, Group Discussion, CIA I
	2	Function Arguments: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments	2		K3(Ap)	Flipped classroom, Gamification	Hands on training, Interaction in tha classroom	Tutorials Point, PythonTutor.com	Class test, Peer review, CIA I
	3	Recursion	1		K3(Ap)	Computational Thinking	Using Computational techniques for Solving Problems	Discussion Forum	Slip test, Brainstorming, CIA I

	4	Python Strings: String Operations, Immutable Strings, Built-in String Methods and Functions, String Comparison	3	1	K3(Ap)	Blended Learning, Reflective Thinking	Webinars, Demonstation of Experiments	W3Schools, GeeksFor Geeks	Quiz, Surprise test, CIA II
	5	Modules: Import statement, The Python Module,dir() Function, Modules and Namespaces, Defining our own Modules	3		K3(Ap), K6(C)	Problem Solving, , Inquiry-based approach, Lecture method	Interaction in tha Classroom, Brainstorming, Group Discussion,	Python Docs, Real Python, GitHub snippets	Oral Presentation, Assessment Tools, CIA II
IV	**Lists, Tuples,OOPs Concepts, Inheritance, Ploymorphism and Abstraction**								
	1	Lists: Creating a List, Access values in List, Updating values in Lists, Nested Lists, Basic List Operations, List Methods	2	1	K2(U), K6(C)	Constructivism , Group Discussion	Basic Lab experiments,G roup work	W3Schools, Python Docs	Group Discussion, Student Presentation, CIA II
	2	Tuples: Creating, Accessing, Updating, Deleting elements in a Tuple, Nested Tuples, Difference between Lists and Tuples	3		K3(Ap)	Cooperative learning, Reflective Thinking	Quiz, Hands on training	GeeksFor Geeks, Tutorials Point	Open book Test, MCQs, CIA II

	3	OOPs Concepts: Class, Object, Constructors, Types of Variables,Types of Methods	2		K3(Ap)	Simulation, Problem solving	Role-play, Solving Poblems	Programiz, Discussion Forum	Preparation of Question Bank by the Students,Slip Test, CIA II
	4	Inheritance: Single Inheritance, Multiple Inheritance, Multi-level Inheritance, Hierarchical and Hybrid Inheritance	2	1	K6(C)	Computational Thinking, Context based	Assignment, Mind map	Python OOP tutorials, YouTube Videos	Creative Writing, Assessment Tool, CIA II
	5	Polymorphismand Abstraction: With Functions and Objects, With Class Methods, Abstract Classes	3	1	K6(C)	Blended Learning, Experimental Learning	Practicals, Webinars	OOP resource banks, GitHub examples	Observation Note, Extempore, CIA II
V	**Python File Handling**								
	1	Python File Handling:Types of Files in Python, Opening and Closing Files	3	1	K2(U)	Demonstrative, Lecture Method	Demonstration of Experiments, Hands-on training	W3Schools, Python Docs	Quiz, Homework, CIA II
	2	Reading and Writing Files: write() and writelines() Methods, append() Method	3		K3(Ap)	Collaboration, Computational Thinking	Group Discussion, Using Computational techniques	Programiz, Tutorials Point	Assessment Tool,CIA II

	3	read() and readlines() Methods	2		K3(Ap)	Simulation Context based	PPT, Analyze Problem Situation	GeeksFor Geeks	MCQs, open BookTest, CIA II
	4	with keyword, Splitting words, File Methods	2	1	K3(Ap)	Gamification, Flipped Classroom	Memory Game, Assignment	Python Docs	Presentation, Brainstorming, CIA II
	5	File Positions, Renaming and Deleting Files	2	1	K3(Ap)	Brainstorming, Cooperative Learning	Team Teaching, Group Work	Python Docs, GitHub snippets	ClassTest, Group Discussion, CIA II

Activities (Em/ En/SD):

1. Write Python code for Recursion.
2. Write Python code for Lists.
3. Write Python code for Tuples.

Course Focussing on Employability/ Entrepreneurship/ Skill Development

Assignment: Python Arrays, Inheritance and File Methods(Last date to submit – 10-08-2025)

Sample questions

Part A (1 Mark)

1. Who developed the Python language? (K1-R)

   a) Zim Den b) Guido van Rossum c) Niene Stom d) Wick van Rossum

2.What does the statement continue do in a Python loop? (K2-U)
3. What is the primary purpose of the return statement in a Python function? (KI-R)
4. Suppose listExample is ['h','e','l','l','o'], what is len(listExample)? (K3-Ap)
   a) 5 b) 4 c) None d) Error
5. To open a file c:\scores.txt for reading, we use _____(K1-R)

Part B (6 Mark)

1. Write the features of Python. (K1-R)
2. Write the syntax and an example Python program for if-elif-else statement (K3-Ap)
3. What are the different Python string operations? (K1-R)
4. Write notes on Constructors used in Python. (K1-U)
5. Write the file methods in Python with code? (K3-Ap)

Part C (12 Mark)

1. Summarize on arrays used in Python. (K1-R)
2. Discuss about the different Conditional Branching statements in Python. (K1-R)
3. Differentiate and explain variable length arguments and default arguments used in Python functions. (K1-R)
4. Explain Inheritance in detail. (K1-R)
5. Explain reading and writing into a file with a suitable Python program. (K3-Ap)

Head of the Department

Dr. V.S. Harilakshmi

Course Instructor

Ms. Nitha Justin

Department : Computer Science
Class : I B.Sc. Computer Science
Title of the Course : Core Lab Course I: Python Programming Lab
Semester : I
Course Code : SU231CP1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU231CP1	**-**	1	4	–	**5**	**5**	**75**	**25**	**75**	**100**

Learning Objectives:

1. To acquire programming skills in core Python.
2. To develop the ability to write database applications in Python.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	remember fundamental python syntax and basic data types , and understand the concepts.	**K1& K2**
2.	understand the functionality and purpose of control structures and apply the concepts to identify patterns and relationships.	**K2&K3**
3.	understand the purpose of functions , database and apply this to solve problems.	**K2 &K3**

K1 - Remember; **K2** - Understand; **K3**- Apply

Total Contact hours: 75 (Including Practical Classes and Assessments)

Unit	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
1	Variables, Constants, I/O Statements Operators	12	3	K1(R) &K2(U)	Problem Solving	Basic Lab Experiments	Programiz, TutorialsPoint	Verifying Output
2	Conditional Statements Loops	12	3	K2(U) & K3(Ap)	Reflective Thinking	Demonstration of Experiments	GeeksForGeeks	Verifying Output
3	Functions & Recursion Modules	12	3	K2(U) & K3(Ap)	Experimental Learning	Hands on training through Skill	TutorialsPoint	Verifying Output

4	Arrays, Strings	12	3	K1(R) & K2(U)	Computational Thinking	Using Computational thinking for Solving Problems	Programiz, Python Documentation	Verifying Output
5	Lists, Tuples, Dictionaries File Handling	12	3	K2(U)& K3(Ap)	Problem Solving	Advanced Lab Experiments	Python MOOC, YouTube	Verifying Output

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Employability, Skill Development

Activities (Em / En /SD): Hands on Training , Project

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): Professional Ethics

Environment Sustainability activities related to Cross Cutting Issues: NIL

Sample questions

1. Program using variables, constants, I/O statements in Python.
2. Program using Operators in Python.
3. Program using Conditional Statements.
4. Program using Loops.
5. Program using Jump Statements.
6. Program using Functions.
7. Program using Recursion.
8. Program using Arrays.
9. Program using Strings.
10. Program using Modules.
11. Program using Lists.
12. Program using Tuples.
13. Program using Dictionaries.
14. Program for File Handling.

Head of the Department
Dr. V.S. Harilakshmi

Course Instructor
Ms. Nitha Justin

Department : Mathematics
Class : I B.Sc Computer Science
Title of the Course : Elective Course I: Numerical Methods
Semester : I
Course Code : SU231EC1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU231GE1	3	1	-	-	3	4	60	25	75	100

Learning Objectives:

1. To realize the basic understanding of numerical algorithms.
2. To implement algorithms to solve mathematical problems on the computer.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	remember the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for computer problems.	**K1 & K2**
2.	understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.	**K2 & K4**
3.	apply this to solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with software applications.	**K3 & K5**
4.	analyse direct methods for solving linear systems.	**K4 & K5**
5.	evaluate methods for solving first and second order ordinary differential equations.	**K3 & K5**

K1 - Remember; **K2** - Understand; **K3**- Apply; **K4** - Analyse; **K5-** Evaluate

Teaching plan

Total Contact hours:60 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**FUNDAMENTALS OF ALGEBRAIC EQUATION**								
	1	Solution of algebraic and transcendental equations	2	1	K1(R) & K3 (Ap)	Introductory session, Lecture with illustration, Flipped Classroom	Think-pair-share, In-class discussions	*Video Lectures,* e-books	Questioning, recall steps, concept definitions, concept with examples,CIA I
	2	Bisection method	1		K3(Ap)	Group discussion, Lecture with illustration, Problem solving	Solving Problems, Group discussion	LectureNotes, assignment and video lectures – MIT Open Course Ware	Evaluation through short test, concept explanations, solve problems, Group presentation, CIA I
	3	Fixed point iteration method	2	1	K2(U)& K5(E)	Peer teaching, Concept-based discussion, Problem solving	Using computational techniques for solving problems, Brain storming	You Tube videos, tutorial notes	Slip Test, concept explanations, solve problems, CIA I.

	4	Newton Raphson method	2		K3(Ap)	Problem-based learning, Flipped classroom	Group discussion, Solving problems	NPTEL lectures	Quizusing Google Forms,Oral presentation, CIA I.
	5	Linear system of equations - Gauss elimination method	2	1	K4(An) & K5(E)	Peer teaching, Collaborative learning	Using computational techniques for solving problems, Peer learning	MATLAB Online	Open Book Test, Peer review, CIA I
II	**ITERATIVE, INTERPOLATION AND APPROXIMATION**								
	1	Gauss Jacobi method	2	1	K1(R) & K3(Ap)	Introductory session, Lecture with illustration, Problem solving	Peer Instruction, Blended Learning	NPTEL Lectures, YouTube Lectures	Recall steps, questioning, concept definitions, concept with examples, CIA I
	2	Gauss Seidel method	1		K2(U) & K3(Ap)	Group discussion, Problem-based learning	Think-pair-share, Group activities	Wolfram Alpha – Step by step solution for numerical problems	Group discussion, Quiz using Kahoot, CIA I
	3	Interpolation with unequal intervals	2	1	K3(Ap)	Demonstration, Problem solving, Inquiry-based	Discussions, Formulating questions	Video lectures, Notes	Class test, CIA I

						learning			
	4	Lagrange's interpolation	2		K5(E)	Flipped classroom, Collaborative learning	Group activities	Video lectures - Khan Academy	CIA I
	5	Newton's divided difference interpolation	2	1	K4(An) & K5 (E)	Peer Teaching, Problem solving	Answering questions from peers, Solving problems	You Tube Videos	Short-answer conceptual questions, Peer review, CIA I
III	**INTERPOLATION WITH EQUAL INTERVAL**								
	1	Difference operators	2	1	K1(R) & K3 (Ap)	Active learning	Discussions, Brainstorming	Video Lectures	Multiple choice questions, CIA I
	2	Relations	1		K2(U)	Inquiry-based learning, Flipped classroom	Formulating questions, In-class discussions	GeoGebra – Visualize numerical methods	Quiz using Quizizz, CIA I
	3	Interpolation with equal intervals	2	1	K5(E)	Blended learning, Problem-based learning	Online discussions, Online problem sets	Video lectures - Coursera	Oral test, CIA II
	4	Newton's forward difference formula	2	1	K3(Ap) & K4(An)	Lecturing, Problem solving	Think-pair-share, solving problems	NPTEL Lectures	Assignment, CIA II

	5	Newton's backward difference formula	2		K4(An) & K5 (E)	Flipped classroom, Collaborative learning	Group activities	Websites – Geeks for Geeks	Presentation, Group discussion, CIA II
IV	**NUMERICAL DIFFERENTIATION AND INTEGRATION**								
	1	Approximation of derivatives using interpolation polynomials	2	1	K1(R) & K3 (Ap)	Introductory session, Lecture with illustration, Problem solving	Think-pair-share, Solving problems	Interactive conceptual problems – Brilliant.org	Quiz on interpolation, Brainstorming, CIA II
	2	Numerical integration	1		K2(U)	Inquiry-Based Learning, Flipped classroom	Formulating questions, Group activities	NPTEL Lectures	Observation note, Presentation, CIA II
	3	Trapezoidal Rule	2		K3(Ap) & K5(E)	Peer teaching, Collaborative learning	Explaining concepts, information gap activities and problem solving tasks	You Tube Videos	Multiple Choice Questions, Surprise test, CIA II
	4	Simpson's 1/3 rule	2	1	K4(An) & K5(E)	Blended Learning	Online problem sets, collaborative problem solving tools	Tutorials point – Explanations of key methods with formulas	Class test, CIA II

	5	Simpson's 3/8 rule	2	1	K4(An) & K5(E)	Cooperative learning, Problem solving	Using computational techniques for solving problems	NPTEL lectures	Group discussion, Oral presentation, CIA II
V	**INITIAL VALUE PROBLEMS FOR ORDINARY DIFFERENTIAL EQUATIONS**								
	1	Single step methods	1	1	K1(R) & K2(U)	Introductory session, Lecture with illustration, Problem solving	Think-pair-share, Solving problems	Video lectures	Quiz on single step method, CIA II
	2	Taylor's series method	2		K3(Ap)	Problem-based learning	Solving complex problems	Wolfram Alpha – solving numerical problems	Brainstorming, Presentation, CIA II
	3	Euler's method	2	1	K3(Ap) & K5(E)	Blended learning, Computational thinking	Online problem sets, Using computational techniques for solving problems	NPTEL lectures	Group discussion, Multiple Choice Questions, CIA II
	4	Modified Euler's method	2	1	K3(Ap) & K5(E)	Inquiry-Based Learning, Flipped classroom	Formulating questions, Group activities	MIT Open Course Ware	Class test, CIA II

	5	Runge Kutta method for solving (first, second, third) order equations	2		K4(An) & K5(E)	Peer teaching, Differentiated instruction	Explaining concepts, Answering questions from peers, Offering problem-solving tasks at varying levels of complexity	NPTEL lectures	Peer review, Oral test, CIA II

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Skill Development

Activities (Em / En /SD): Solving Problems in Gauss Jacobi and Gauss Seidel method

Assignment: Newton's forward difference formula(Last date to submit 22-08-2025)

Sample questions

Part A (1 mark)

1. Choose the algebraic equation from the following _____.**(K1-R, CO 1)**
   a) $x^2 + x + 1 = 0$ b) $3x + sin\ sinx + 2 = 0$
   c) $log\ logx + sin\ sinx + 2 = 0$ d) $2e^x + sin\ sinx + x^2 = 0$

2. Geometrical interpretation Newton Raphson method is also referred as _____.**(K2-U, CO 2)**

   a) Method of False Position b) Bolzano method

   c) Method of tangents d) Lagrange's interpolation

3. The n^{th} $divided$ difference of a polynomial of degree n are _____.**(K2-U, CO 2)**

a)1 b) 0 c) n d)2

4. If f(4) = 1, f(6) = 3 then the interpolating polynomial is _____.**(K3-Ap, CO 3)**

a) $3x-1$ b) $x+3$ c) $x-3$ d) $3x-2$

5. Newton's forward interpolation is used only for _____ intervals.**(K2-U, CO 1)**

a) equal b) unequal c) infinite d) none

Part B (6 mark)

1. Find a real root of the equation $x^3+x^2-1=0$ in the interval [0,1] by the method of iteration ?**(K3-Ap, CO 3)**

2. Solve the following equation by Gauss Seidel method **(K5-E, CO 4)**

$2x+y=3$

$2x+3y=5$

3. Find $\Delta(2^x)$**(K3-Ap, CO 3)**

4. Given the values

x	3	7	9	10
y	168	120	72	63

Evaluate y_6 using Langrange's formula.**(K5-E, CO 5)**

5. Given $y'=x^2-y,\ y(0)=1\ find\ y=(0.1)$ using Runge-kutta method of fourth order. **(K3-Ap, CO 5)**

Part C (12 mark)

1. Solve the following system of equation using Gauss Seidel iteration method.**(K5-E, CO 4)**

$6x+15y+2z=72;\quad x+y+54z=110;\quad 27x+6y-z=85$

2. From the data given below, find the number of students whose weight is between 60 and 70.**(K3-Ap, CO 3)**

Weight	0-40	40-60	60-80	80-100	100-120
Number of students	250	120	100	70	50

3. Given that $u_0 = 5$; $u_1 = 15$; $u_2 = 57$; and $\frac{du}{dx}$ =4 at x=0 and 72 at x=2. Find $\Delta^3 u_0$ and $\Delta^4 u_0$**(K3-Ap, CO 5)**
4. Using Taylor's method solve $\frac{dy}{dx} + 2xy = 1, y_0 = 0$.**(K5-E, CO 4)**
5. Using Euler's method solve $\frac{dy}{dx} = 1 + xy$ with $y(0.1) = 2$. Find $y(0)$, $y(0.2)$ and $y(0.3)$. Also find the values by modified Euler's method.
(K5-E, CO 5)

Head of the Department **Course Instructor**

Dr. V. S. Harilakshmi **Dr. C. Jenila**

Department : **Computer Science**
Class : **I B.Sc. Computer Science**
Title of the Course : **Non Major Elective NME I: Office Automation**
Semester : **I**
Course Code : **SU231NM1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU231NM1	1	1	–	–	**2**	**2**	**30**	**25**	**75**	**100**

Learning Objectives:

1. To impart training for students in Microsoft Office which has different components like MS Word, MS Excel and MS Power point
2. To acquire knowledge on editor, spreadsheet and presentation software

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	Remember the fundamentals and understand the concepts	**K1**
2.	Understand the functionality and purpose of commands and apply the concepts	**K2**
3.	Understand the purpose of functions, database and apply this to solve problems.	**K3**

K1 - Remember; **K2** - Understand; **K3**- Apply;

Teaching plan

Total Contact hours:30 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**INTRODUCTORY CONCEPTS**								
	1	Memory unit, CPU	1	1	K2(U)	Lecture using chalk and talk. Discussion, PPT	Discussion	Computer Basics by GCFGlobal **https://edu.gcfglobal.org/en/computerbasics/**	Quiz, Oral Quiz, CIA I
	2	Input Devices : Keyboard, Mouse and Scanner	1		K1(R)	KWL, Demonstration	Assignment	Computer Hardware and Software - YouTube (NPTEL or Learnvern)	Simple Definitions, CIA I
	3	Output devices : Monitor, Printer	1		K2(U)	Intergrative teaching, ppt, Demonstration	Mind map, assignment	TutorialsPoint – Basics of Computers **https://www.tutori**	Slip test, peer review, CIA I

								alspoint.com/computer_fundamentals/index.htm	
	4	Introduction to operating system & its features : DOS, Unix, Widows	1		K2(U)	Context based, lecture method	Group Discussion	Operating Systems: Crash Course Computer Science **https://www.youtube.com/watch?v=26QPDBe-NB8**	Assignment, MCQ, CIA I.
	5	Introduction to programming language	1		K2(U)	Reflective thinking, comparative learning	Case study, Brain storming	GeeksforGeeks – Programming Languages Introduction **https://www.geeksforgeeks.org/introduction-to-programming-languages/**	Open Book test, Exam Questions, CIA I
II	WORD PROCESSING								
	1	Open, Save and close word document .	1	1	K1(R)	Lecture using chalk	Peer Instruction	Microsoft Word	Quiz, Oral Quiz, CIA I

						and talk. Discussion, PPT	, Blended Learning,	Online Interactive Training **https://support.microsoft.com/en-us/word**	
	2	Editing text, tools, formatting, spell checker	1		K2(U)	KWL, Demonstration	Group Discussion , Interaction in the class room.	GCF Learn Free – Word 2016 / 2019 Tutorials **https://edu.gcfglobal.org/en/word/**	Simple Definitions, CIA I
	3	Document formatting, Paragraph alignment,	1	1	K3(Ap)	Intergrative teaching, ppt, Demonstration	Inquiry based learning	YouTube: Word Basics Tutorial (Simon Sez IT / TeacherTube)	Slip test, peer review, CIA I
	4	indention, header and footer, numbering	1		K3(Ap)	Context based, Demonstation	Discussion , peer teaching	TutorialsPoint – MS Word **https://www.tutorialspoint.com/ms_word/index.htm**	Assignment, MCQ, CIA I.
	5	Printing preview options, mail merge	1		K2(U)	Reflective thinking,	Case study,	Microsoft Office	Open Book test, Exam

						comparative learning	concept mapping	Templates **https://templates.office.com/**	Questions, CIA I
III	SPREAD SHEET								
	1	Excel : Opening, Entering text and data	1	1	K1(R) & K3 (Ap)	Lecture using chalk and talk.Discussion, PPT	Peer Instruction, Blended Learning,	Excel Easy – Free Excel Tutorials **https://www.excel-easy.com/**	Quiiz, CIA II
	2	Formatting, Navigating, Formulas entering	1		K2(U)	KWL, Demonstration	Group Discussion, Interaction in the class room.	GCF Learn Free – Excel 2016/2019/365 **https://edu.gcfglobal.org/en/excel/**	Oral viva, CIA II
	3	Charts-creating, formatting and printing	1	1	K3(Ap)	Intergrative teaching, ppt, Demonstration	Inquiry based learning	Microsoft Excel Official Training **https://support.microsoft.com/en-us/excel**	Peer review, CIA II
	4	Analysis table. Preparation of financial statements	1		K3(Ap)	Context based, lecture method	Discussion, peer teaching	Excel Jet – Functions and Formulas **https://exceljet.net/**	CIA II

	5	Introduction to data analytics	1	1	K4(An)	Reflective thinking, comparative learning	Case study, concept mapping	YouTube: Excel for Beginners (Leila Gharani or ExcelIsFun)	Oral/Viva Test CIA II
IV	Database Concpets								
	1	The concept of database management :Date field,records and files, searching records	1	1	K1(R) & K3 (Ap)	Constructivist Learning, Inquiry-Based Learning	Peer Instruction, Blended Learning,	W3Schools SQL Tutorial **https://www.w3schools.com/sql/**	Quiz, Oral Quiz, CIA I
	2	Sorting and indexing data	1		K2(U)	Inquiry-Based Learning, Visual/Graphical Pedagogy	Group Discussion, Interaction in the class room.	Microsoft Access Tutorial (GCF Learn Free) **https://edu.gcfglobal.org/en/access/**	Simple Definitions, CIA I
	3	Designing queries and reports, Linking of data files	1		K3(Ap)	Conceptual Pedagogy, Problem-Based	Inquiry based learning	TutorialsPoint – DBMS Concepts	Slip test, peer review, CIA I

						Learning		**https://www.tutorialspoint.com/dbms/index.htm**	
	4	Understanding programming environements in DBMS	3	1	K3(Ap)	Blended Learning	Discussion, peer teaching	YouTube: MS Access Beginner Tutorial	Assignment, MCQ, CIA I.
	5	Developing menu drive application in query language(MS-Access)	5	1	K4(An)	Application-Oriented Learning, Analytical Learning	Case study, concept mapping	Khan Academy – Intro to Databases **https://www.khanacademy.org/computing/computer-programming/sql**	Open Book test, Exam Questions, CIA I
V	POWERPOINT								
	1	Itroduction to power point, features	1	1	K1(R)	Core Conceptual Approach	Peer Instruction, Blended Learning,	Microsoft PowerPoint Support and Tutorials **https://support.microsoft.com/en-us/powerpoint**	Quiz, Oral Quiz, CIA I
	2	Understanding slide typecasting & viewing slides,	1		K2(U)	Visual Pedagogy	Group Discussion	GCF Learn Free	Simple Definitions,

		creating slide shows					, Interaction in the class room.	– PowerPoint 2016 / 2019 **https://edu.gcfglobal.org/en/powerpoint/**	CIA I
	3	Applying special object. Including object & pictures	1		K3(Ap)	Constructive Learning	Inquiry based learning	YouTube: PowerPoint for Beginners (Technology for Teachers and Students)	Slip test, peer review, CIA I
	4	Slide transition , Animation effects	1	1	K3(Ap)	Problem-Based Learning	Discussion , peer teaching	Canva Design School – Presentation Tips **https://www.canva.com/learn/presentation-design/**	Assignment, MCQ, CIA I.
	5	Audio inclusion timers	1		K2(U)	Integrated Learning	Case study, concept mapping	LinkedIn Learning (Free Trial Available) **https://www.linkedin.com/learning/**	Open Book test, Exam Questions, CIA I

Course Focussing on Employability/ Entrepreneurship/ Skill Development:**Skill Development**

Activities (Em / En /SD):

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity):

Assignment: Input -Output Devices(Last date to submit – example: 01-09-2025)

Sample questions (minimum one question from each unit)

Part A (2 mark)

1. What is CPU?(**K1-R, CO-1)**
2. What are the four types of text alignment in MS WORD(**K1-R, CO-1)**
3. What do you mean by cell address?(**K1-R, CO-1)**
4. What is record?(**K1-R, CO-1)**
5. List out the different types of transition effects?(**K1-R, CO-1)**

Part B (5 marks)

1. Explain the operating system(K2-U, CO-2)
2. Discuss the secondary storage devices(K1-R, CO-1)
3. Define the ways how to cut and copy the text in Word 2010.(K2-U, CO-2)
4. Name some Microsoft Excel Window components(K2-U, CO-2)
5. Explain the various applications of spreadsheet in accounting(K2-U, CO-2)

Part C (8 marks)

1. Explain the input and output devices(**K1-R, CO-1)**
2. How to check spelling in MS Word (K1-R, CO-1)
3. Explain the various applications of spreadsheet in MS-Excel (k3-An, CO-3)
4. Explain the form creation in MS-Access (K3-An, CO-3)
5. Explain the different view format supported by PowerPoint. (K2-U, CO-2)

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. B. S. Saravana Bala

Department : **Computer Science**
Class : **I B.Sc. Computer Science**
Title of the Course : **Foundation Course: Problem Solving Techniques**
Semester : **I**
Course Code : **SU231FC1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU231FC1	1	1	–	–	**2**	**2**	**30**	**25**	**75**	**100**

Learning Objectives:

3. To understand the importance of algorithms and programs, and to know the basic problem solving strategies.
4. To learn efficient strategies and algorithms to solve standard problems, thus laying a firm foundation for designing algorithmic solutions to problems.

Course Outcomes

On the successful completion of the course, students will be able to:		
1	know the approach and algorithms to solve specific fundamental problems.	**K1**
2	understand the systematic approach to problem solving.	**K2**
3	apply the efficient methods to solve specific problems related to text processing.	**K3**

K1 - Remember; **K2** - Understand; **K3**- Apply;

Teaching plan

Total Contact hours:30 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**INTRODUCTION**								
	1	Introduction, History, Characteristics of Computer, Hardware/Anatomy of computer	1	1	K1(R)	Lecture using chalk and talk. Discussion, PPT	Discussion	Computer Basics by GCFGlobal https://edu.gcfglobal.org/en/computerbasics/	Quiz, Oral Quiz, CIA I
	2	CPU, Memory, Secondary storage devices, Input devices and Output devices	1		K1(R)	KWL, Demonstration	Assignment	Computer Hardware and Software - YouTube (NPTEL or Learnvern)	Simple Definitions, CIA I
	3	Type of computer software, Programming Languages	1		K2(U)	Intergrative teaching, ppt, Demonstration	Mind map, assignment	TutorialsPoint – Basics of Computers https://www.tutorialspoint.com/	Slip test, peer review, CIA I

								computer_fundamentals/index.htm	
	4	4GL and 5GL features of good programming language, Translators	2		K2(U)	Context based, lecture method	Group Discussion	You tube videos	Assignment, MCQ, CIA I.
II	**DATA**								
	1	Introduction, Data types, Processing of data, Arithmetic operators, Hierarchy of operations and output	1	1	K1(R)	Lecture using chalk and talk. Discussion, PPT	Peer Instruction, Blended Learning,	Analytics vidya	Quiz, Oral Quiz, CIA I
	2	Different Phases in Program Development Cycle (PDC), Structured Programming, Features of good algorithm, Benefits and drawbacks of algorithm	1		K2(U)	KWL, Demonstration	Group Discussion, Interaction in the class room.	Tutorialspoint	Simple Definitions, CIA I
	3	Flowcharts advantage and limitations of flowcharts, when to use flowcharts	1		K3(Ap)	Intergrative teaching, ppt, Demonstration	Inquiry based learning	YouTube: Word Basics Tutorial	Slip test, peer review, CIA I
	4	Pseudo code, coding, documenting and testing a program, Comment lines and types of errors, Program design, Modular programming	2		K3(Ap)	Context based, Demonstation	Discussion, peer teaching	Analytics video	Assignment, MCQ, CIA I.

III	**SELECTION STRUCTURES**								
	1	Relational and Logical Operators, Selecting from several alternatives	1	1	K1(R) & K3 (Ap)	Lecture using chalk and talk.Discussion, PPT	Peer Instruction, Blended Learning,	Tutorialspoint, You tube videos	Quiiz, CIA II
	2	Applications of selection structures	1		K2(U)	KWL, Demonstration	Group Discussion, Interaction in the class room.	Tutorialspoint, You tube videos	Oral viva, CIA II
	3	Repatition Structures, counter controlled loops	1		K3(Ap)	Intergrative teaching, ppt, Demonstration	Inquiry based learning	Tutorialspoint, You tube videos	Peer review, CIA II
	4	Nested Loops, Applications of Repetition Structures	2		K3(Ap)	Context based, lecture method	Discussion, peer teaching	Tutorialspoint, You tube videos	CIA II
IV	**DATA AND ARRAY**								
	1	Numeric data and Character based data	1	1	K1(R) & K3 (Ap)	Constructivist, Learning, Inquiry-Based Learning	Peer Instruction, Blended Learning,	W3Schools	Quiz, Oral Quiz, CIA I

	2	Arrays, One dimensional array, two dimensional array	2		K2(U)	Inquiry-Based Learning, Visual/Graphical Pedagogy	Group Discussion, Interaction in the class room.	W3Schools	Simple Definitions, CIA I
	3	String as arrays of Characters	2		K3(Ap)	Conceptual Pedagogy, Problem-Based Learning	Inquiry based learning	TutorialsPoint	Slip test, peer review, CIA I
V	**DATA FLOW DIAGRAMS**								
	1	Definition, DFD symbols and types of DFDs	1	1	K1(R)	Core Conceptual Approach	Peer Instruction, Blended Learning,	Self made you tube videos	Quiz, Oral Quiz, CIA I
	2	Program Modules, Subprograms-Value and Reference parameters	1		K2(U)	Visual Pedagogy	Group Discussion, Interaction in the class room.	Tutorialspoint	Simple Definitions, CIA I
	3	Scope of a variable, Functions, Recursion, Files	1		K3(Ap)	Constructive Learning	Inquiry based learning	Tutorialspoint	Slip test, peer review, CIA I
	4	File Basics, Creating and reading a sequential file-Modifying Sequential Files.	2		K3(Ap)	Problem-Based Learning	Discussion, peer teaching	Tutorialspoint	Assignment, MCQ, CIA I.

Course Focussing on Employability/ Entrepreneurship/ Skill Development: **Skill Development**
Activities (Em / En /SD): **SD**
Title: "Build, Break, and Fix: The Algorithm Clinic"
Objective:
To enhance students' logical reasoning, debugging ability, and structured problem-solving skills by engaging in real-world inspired coding scenarios.
Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): - **NIL**
Assignment: Different Phases in Program Development Cycle (PDC) (Last date to submit – 31-07-2025)

Sample questions (minimum one question from each unit)

Part A (2 mark)

1. What is CPU? (K1-R, CO-1)
2. What are the four types of text alignment in MS WORD (K1-R, CO-1)
3. What do you mean by cell address? (K1-R, CO-1)
4. What is record? (K1-R, CO-1)
5. List out the different types of transition effects? (K1-R, CO-1)

Part B (5 marks)

1. Explain the operating system. (K2-U, CO-2)
2. Discuss the secondary storage devices. (K1-R, CO-1)
3. Define the ways how to cut and copy the text in Word 2010. (K2-U, CO-2)
4. Name some Microsoft Excel Window components. (K2-U, CO-2)
5. Explain the various applications of spreadsheet in accounting. (K2-U, CO-2)

Part C (8 marks)

1. Explain the input and output devices. (K1-R, CO-1)
2. How to check spelling in MS Word (K1-R, CO-1)
3. Explain the various applications of spreadsheet in MS-Excel (k3-An, CO-3)
4. Explain the form creation in MS-Access (K3-An, CO-3)
5. Explain the different view format supported by PowerPoint. (K2-U, CO-2)

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Dr. V. S. Harilakshmi

Department : Computer Science
Class : II B.Sc. Computer Science
Title of the Course : Core Course III: PROGRAMMING IN JAVA
Semester : III
Course Code : SU233CC1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU233CC1	5	-	–	–	**5**	5	**75**	**25**	**75**	**100**

Learning Objectives:

1. To understand the basic object oriented programming concepts and apply them in problem solving.
2. To demonstrate multitasking by using multiple threads and event handling.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords	**K1& K2**
2.	understand the process of graphical user interface design and implementation using AWT or swings	**K1&k4**
3.	use multithreading concepts to develop inter process communication.	**K2&K3**
4.	demonstrate the behaviour of programs involving the basic programming constructs like control structures, constructors, string handling and garbage collection.	**K2&K4**
5.	develop applets that interact abundantly with the client environment and deploy on the server.	**K6**

K1 - Remember; **K2** - Understand; **K3**- Apply; **K4** - Analyse; **K6- Creat**e

Teaching plan

Total Contact hours: 75 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**INTRODUCTION**								
	1	Object Oriented Thinking and Java Basics: Need for OOP Paradigm - Summary of OOP Concept - Java Buzzwords	2	1	K2(U)	Lecture with Visual Aids such as PPT, Conceptual Demonstration, Flipped Classroom.	Inquiry-Based Learning, Peer Teaching	Oracle Java Tutorials – Introduction and Basics https://docs.oracle.com/javase/tutorial/java/nutsandbolts/index.html	Written Assignment-Oral Presentation, Conceptual Questions, CIA I
	2	Data Types - Variables - Scope andlifetimeofVariables-TypeConversionandCasting	3		K2(U)	Real world examples, interactive lectures,chalk & talk, comparison based lecture	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	W3Schools – Java Tutorial https://www.w3schools.com/java/	MCQ test, Visualization Task, Conceptual Quiz, CIA I

	3	Arrays -Operators andExpressions-ControlStatements-Simple JavaProgram	2	1	K4(An)	KWL, Lecture with visualization, Concept-based discussion, Comparative learning	Collaborative Learning, Concept Mapping	GeeksforGeeks – Java Language Basics https://www.geeksforgeeks.org/java/	Oral Quiz , slip test, Assignment, CIA I.
	4	Concepts of Classes and Objects - Constructors - Methods - this keyword	3		K2(U))	Integrative teaching, Inquiry-based approach, Demonstration	Team teaching, case study, brain stroming, peer teaching,	GFG YouTube Series: Java Programming https://www.youtube.com/playlist?list=PLqM7alHXFySGg6Ww6XyZEK2iScC9P9zW-	Peer Review, Online assignment,CIA I.
	5	OverloadingMethodsandConstructors-ParameterPassing -Recursion	2	1		Lecture with Visual Aids such as PPT, Conceptual Demonstration, Embodied learning	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	JetBrains Academy – Java Developer Track (Free Trial) https://www.jetbrains.com/acad	MCQ, quiz, class test

								emy/	
II	**INHERITANCE, PACKAGES AND INTERFACES**								
	1	Benefits of Inheritance – Member Access - Types of Inheritance	3	1	K1(R) & K3(Ap)	Demonstration-based Learning: Concept Mapping, Flipped Classroom	Peer Instruction, Blended Learning,	JavaTPoint – Inheritance & Interface https://www.javatpoint.com/inheritance-in-java	Open Book Test, Assignment Oral Viva, CIA I
	2	Method Overriding – Using Super keyword - Using final with Inheritance – Using Abstract Classes.	3		K2(U)	Problem Solving: Model, computational thinking, case study, Brain storming	Analyse problem situation, Demonstration, case study, Peer teaching	Oracle Tutorial – Packages and Interfaces https://docs.oracle.com/javase/tutorial/java/package/index.html	Written Assignment-Oral Presentation, ,, CIA I
	3	Packages: Defining, Creating and Accessing a Package - Understanding CLASSPATH - Importing Packages – Access Protection	3	1	K3(Ap)	Context based, Collaboration, inquiry based approach, Blended Learning	Group Discussion, Mind maps, Interaction in the class room, self declared active learning	W3Schools – Java Inheritance and Interface https://www.w3schools.com/java/java_inheritance.asp	Peer Review, Student presentation, Quiz qustioning CIA I

	4	Interfaces: DifferencesbetweenClassesand Interfaces- DefininganInterface- ImplementingInterface	3		K3(Ap)	Case study method, Context based, comparative learning, collaboration, Lecture method	Group Disussion, Brain Storming, service learning, Interaction in the classroom, problem solving	YouTube: Interface vs Abstract Class – Telusko / CodeWith Harry	Home work, Assignment, group discussion, peer review, CIA II
	5	ApplyingInterfaces- VariablesinInterfaceand Extending Interfaces.	2			Lateral thinking, case study, performance based learning,	Collaborative learning, Group Discussion, case study	StudyTonight – Packages and Interfaces https://www.studytonight.com/java/interfaces-in-java.php	Peer Review, Online assignment, oral viva, open book test
III	**EXCEPTION HANDLING, MULTITHREADING AND STRING HANDLING**								
	1	Concepts of Exception Handling - Benefits of Exception Handling	3	1	K1(R) & K3 (Ap)	Lecture with Visual Aids such as PPT, collaboration, Lecture method, Blended Learning	Power point presentation, group discussion, mind maps, performance based learning	GeeksforGeeks – Exception Handling in Java https://www.geeksforgeeks.org/exceptions-in-java/	MCQ, Discussion, Fill-in-the-blank, CIA II
	2	Exception Hierarchy - Usage of try, catch, throw, throws and finally-Built-in Exceptions- CreatingownExceptionSubclasse	2		K2(U)	Demonstration, Embodied learning, Reflective	Group work, case study, mind map,	Oracle Java Docs – Multithrea	Open Book Test, Assignment Oral Viva

		s.				thinking, Comparitive learning	self declared active learning.	ding and Threads https://docs.oracle.com/javase/tutorial/essential/concurrency/	CIA II
	3	Multithreading: Differences between Multithreading and Multitasking - Thread Life Cycle	3	1	K3(Ap)	Flipped Classroom Brain storming, KWL(want to know), collaboration	Demonstration, Group work, Analyzeproblem situation, peer teaching	YouTube – Java Multithreading Explained (CodeWithHarry / Amigoscode)	Home work, Assignment, group discussion, peer review, CIA II
	4	Creating Threads - Thread Priorities	2		K3(Ap)	Integrative teaching, context based , lecture method, comparative learning,	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	Programiz – Java String Handling https://www.programiz.com/java-programming/string	Peer Review, Online assignment, Group Discussion, CIA II
	5	Synchronizing Threads - Inter thread Communication- String Handling	2			Inquiry based approach, KWL(What you know), Blended Learning, lateral thinking	Powerpoint presentation, Interaction in the classroom, concept mapping	JavaPoint – Synchronization and Thread Communication https://www.javatpoint.com/syn	MCQ test, Visualization Task, Conceptual Quiz, CIA II

								chronization-in-java	
IV	**EVENT HANDLING AND AWT**								
	1	Events - Event Sources - Event Classes - Event Listeners	2	1	K1(R) & K3 (Ap)	Constructive Learning, Inquiry-Based Learning , comparative learning, collaboration	Powerpoint presentation, Interaction in the classroom, concept mapping	Oracle Java Docs – Event Handling Model https://docs.oracle.com/javase/tutorial/uiswing/events/index.html	Peer Review, MCQ, Orai Quiz, Open Book Test, CIA II
	2	Delegation Event Model - Handling Mouse and Keyboard Events - Adapter Classes	2		K2(U)	Inquiry-Based Learning, lecture Method, reflective thinking, integrative teaching, Demonstration	Inquiry-Based Learning, Peer Teaching, Group Disussion, Brain Storming, ,	GeeksforGeeks – Event Handling in Java https://www.geeksforgeeks.org/event-handling-in-java/	Slip test, Discussion, class test, Assignment MCQ, Discussion, Fill-in-the-blank, CIA II
	3	AWT: AWT Classes - Working with Frames Windows	3		K3(Ap)	Lecture with Visual Aids such as PPT, collaboration, Context Based	Mind map, peer teaching, Demonstration, lateral thinking	JavaPoint – AWT and Event Handling https://www.javatpoint.com/java-awt	Presentation, homework, creative writing, group discussion,CIA II
	4	AWT Controls – Working with Graphics	3	1	K3(Ap)	Blended Learning, Lateral	Powerpoint presentatio	YouTube – Java GUI	Quiz, class test, Brainstromin

						thinking, case study, performance based learning,	n, concept mapping, Group Disussion,	Programming (Swing/AWT)	g, Peer review, , CIA II
	5	Layout Manager – Layout Manager Types.	2			Brain storming, KWL(What did you learn), collaboration	service learning, Interaction in the classroom	TutorialsPoint – Java AWT Package https://www.tutorialspoint.com/java/java_awt.htm	Seminars, oral test, quiz questioning in the classroom, CIA II
V	**I/O AND APPLETS: I/O BASICS**								
	1	Reading Console Input – Writing Console Output	3	1	K2(U)	Demonstration-based Learning: Concept Mapping, Brain storming, Reflective thnking	Inquiry-Based Learnin,Peer Teaching, Brain Storming, service learning,	Oracle Docs – Java I/O Basics https://docs.oracle.com/javase/tutorial/essential/io/	Student presentation, online assignment, quiz, assignment,, mcq, CIA II
	2	Scanner Class – PrintWriter Class	2		K2(U)	Filpped class room, Inegrative thinking, context based, comparative learning	Interaction in the classroom, Powerpoint presentation, Group Discussion,	W3Schools – Java I/O and Scanner https://www.w3schools.com/java/java_user_input.asp	Slip test, peer review, oral quiz, group discussion, homework, open book test, CIA II

	3	Applets: Two Types of Applets – Applets Architecture	2		K4(An)	Integrative teaching, Inquiry-based approach, Demonstration, Lecture method, Lateral thinking	Brain storming, case study, Team teaching	JavaPoint – Applet in Java https://www.javatpoint.com/java-applet	Quiz, class test, Brainstroming, Peer review MCQs (CIA II
	4	Differences between Applets and Applications– AnAppletSkeleton	3	1	K3(Ap)	Case study method, Context based, comparative learning, collaboration, Lecture method	Mind map, peer teaching, Demonstration, lateral thinking	YouTube – Java Applet Basics Tutorial	Home work, Assignment, group discussion, peer review,, CIA II
	5	SimpleAppletDisplayMethods CreatingApplets - PassingParameterstoApplets.	2		K4(An)	Lecture with Visual Aids such as PPT, collaboration, Context Based	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	Programiz – Java File and Input/Output Handling https://www.programiz.com/java-programming/file	Brain storming, class test, oral presentation, Discussion, quiz,, CIA II

Course Focussing on Employability/ Entrepreneurship/ Skill Development: **Employability, Skill Development**

Activities (Em / En /SD): writing programs

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): - Environment Sustainability activities related to Cross Cutting Issues:-

Assignment: OOPS Concept(Last date to submit – example: 01-09-2025)

Sample Questions

Part A (1 mark)

1. Name two keywords used in exception handling? (K1, CO3)
2. What is thread in Java. (K1, CO3)
3. Define Synchronization? (K1,CO3)
4. What is the purpose of throws keyword(K1, CO3)
5. Mention any one method of the String class (k1,CO3)

Part B (6 marks)

1. Explain the concept of recursion with a suitable Java example. (K2,CO1)
2. Describe different types of inheritance in Java with diagrams.(K2,CO2)
3. Explain how exception handling is implemented using try, catch, and finally. (K3,CO3)
4. Discuss how layout managers work in AWT. Explain any two layout managers.
5. Differentiate between console input using Scanner and BufferedReader with examples.**Part C (12 marks)**

Part C (12 marks)

1. Write a Java program demonstrating class and constructor overloading using the this keyword. (K3,CO1)
2. Develop a Java application to implement multiple inheritance using interfaces. Explain the program(K3,CO2)
3. Create a Java program that demonstrates multithreading with synchronization. Explain thread behavior.(K4,CO3)
4. Write a Java AWT program to create a simple form with labels, text fields, and buttons. Handle button click events. (K4, CO3)
5. Design and explain an applet program that accepts parameters from HTML and displays them on the screen.(K3,CO6)

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. B. S. Saravana Bala

Department : Computer Science
Class : II B.Sc. Computer Science
Title of the Course : Core Lab Course III: Programming in Java Lab
Semester : III
Course Code : SU233CP1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU231CP1	-	1	2	–	3	3	45	25	75	100

Learning Objectives:

1. To gain knowledge about Java syntax and semantics to be able to successfully read and write Java computer programs.
2. To implement interfaces, inheritance and polymorphism as programming techniques and apply exception handling.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	recall the concepts of object oriented programming such as inheritance, encapsulation and polymorphism in java.	**K1**
2.	describe the purpose -and usage of exception handling mechanisms in java.	**K2**
3.	develop and analyse java programs to solve specific problems or implement algorithms using appropriate data structures..	**K3&K4**
4	evaluate java program using Error handling technique	**K5**
5	create applet program to implement window based activities	**K6**

K1 - Remember; **K2** - Understand; **K3**- Apply

Total Contact hours: 45 (Including Practical Classes and Assessments)

Unit	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods

1	Costructor overloading Constructor overriding	8	5	K2(U) & K3(Ap)	Problem Solving	Basic Lab Experiments	Programiz, TutorialsPoint	Verifying Output
2	Passing Object as argument, Method Overriding	8		K2(U) & K3(Ap)	Reflective Thinking	Demonstration of Experiments	GeeksForGeeks	Verifying Output
3	Interface Thread	8		K2(U) & K3(Ap)	Experimental Learning	Hands on training through Skill	TutorialsPoint	Verifying Output
4	Inheritance AWT	8		K2(U) & K3(Ap)	Computational Thinking	Using Computational thinking for Solving Problems	Programiz, Python Documentation	Verifying Output
5	Exception Event handling	8		K2(U)& K3(Ap)	Problem Solving	Advanced Lab Experiments	Python MOOC, YouTube	Verifying Output

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Employability, Skill Development

Activities (Em / En /SD): Hands on Training , Project

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): Professional Ethics

Environment Sustainability activities related to Cross Cutting Issues: NIL

Sample questions

1. 1. Write a Java program to demonstrate Constructor overloading
2. Write a Java program to demonstrate Constructor overloading
3. Write a java program to add two complex numbers. [Use passing object as argument and return object].
4. Derive another class Student from Student super with data members height and weight. Write a constructor and a method output () to display the details which overrides the super class method output().[Apply method Overriding concept].
5. Write a java program to create an interface called Demo, which contains a double type constant, and a method called area () with one double type argument. Implement the interface to find the area of a circle.
6. Write a java program to create a thread using Thread class.
7. Demonstrate Java inheritance using extends keyword.
8. Create an applet with four Checkboxes with labels MARUTI-800, ZEN, ALTO and ESTEEM and a Text area object. The program must display the details of the car while clicking a particular Checkbox.
9. Write a Java program to throw the following exception,
   Array Index out of Bounds
10. Write a java programming to illustrate Mouse Event Handling.

Head of the Department
Dr. V.S. Harilakshmi

Course Instructor
Ms. B. S. Saravana Bala

Department : **Computer Science**

Class : **II B.Sc Computer Science**

Title of the Course : **Elective Course III: Web Technology**

Semester : **III**

Course Code : **SU233EC1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU233EC1	3	1	-	-	3	4	60	25	75	100

Learning Objectives:

1. To understand server-side technologies like databases and server frameworks.
2. To mastering HTML, CSS and JavaScript for webpage creation.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	recall html tags, css properties, and javascript syntax	**K1**
2.	explain the relationship between html, css and javascript in web development.	**K2**
3.	create well-structured web pages using html and css	**K3**
4.	analyse and evaluate different frameworks and libraries for specific project requirements	**K4,K5**
5.	design and implement responsive web layouts that adopt to various screen sizes and devices	**K6**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Teaching plan

Total Contact hours: 60 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive Level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**Introduction to Web Technologies, Introducing HTML Document Structure, and Working with Links**								
	1.	History of the Web, Understanding Web System Architecture, Understanding 3 - Tier Web Architecture	3	1	K1(R), K2(U)	Lecture with Visual Aids such as PPT	Group Discussion, Concept Mapping	Interactive PPT, Web Diagrams, YouTube (History of Web)	Class Test, Quiz
	2.	Web Browsers, Overview of HTTP, Exploring Web Technologies	3		K1(R), K2(U)	Demonstration Flipped Classroom	Peer Explanation, Assignment	YouTube, Browser Tools	Quiz, Oral Questions
	3.	The <!DOCTYPE> Element, The <html> Element, The <title> Element, The <body> Element	1	1	K3(Ap)	Project-Based Learning	Hands-on HTML Coding	W3Schools	Code Demo, Viva Voce
	4.	Creating Headings on a Web Page, Creating a Hyperlink	1		K3(Ap)	Demonstration	Hands-on Practice	Notepad & Web Browser	Online Coding Task
	5.	Setting the Hyperlink Colors, Linking Different Sections of a Web Page.	1	1	K3(Ap)	Simulation	Practical	Self-made screencasts, Interactive Quizzes	Slip Test, Coding Exercise
II	**Working with Images, Working with Table, and Working with Frames**								
	1.	Inserting an Image on a Web page, Displaying Alternate	1	1	K3(Ap)	Demonstration	Individual HTML Tasks	HTML Image Tutorials,	Asking students to write programs

		text for an Image, Adding a Border to an Image, Aligning an Image						Code Samples	
	2.	Creating Images as Links, Creating Image Maps	2		K3(Ap)	Constructivist Approach	Using Visual Images and Models	W3Schools, Browser Developer Tools	Questioning
	3.	Creating a Table, Specifying a Caption to a Table, Adding a Table Heading, Setting the Table Border, Aligning a Table and Cell Content, Setting the Width of a Table and Table Columns, Setting Cell Padding and Cell Spacing	2	1	K6(C)	Project-Based Learning	Table Creation Challenge	You tube Videos, CodePen, Instructor Notes	Quiz in Slido, Assignment Evaluation
	4.	Spanning Rows and Columns, Nesting Tables	2		K3(Ap), K6(C)	Experiential Learning	Group Discussion Table Nesting Tasks	HTML Table Resources	Evaluation through short test Peer Assessment
	5.	Creating a Frame, Creating Vertical and Horizontal Frames	1	1	K4(An), K6(C)	Flipped Classroom	Demonstration of Experiments Frame Design Activity	Notepad & Web Browser, YouTube	Suggest idea with examples
	6.	Setting the Frame Border Thickness, Applying Hyperlink targets to a Frame.	1		K2(U) K3(Ap)	Simulation	Brain Storming, Task-based Coding	Notepad & Web Browser, Interactive IDE	Concept Explanations, Quiz, Code Output Evaluation
III	**Introduction to Forms and HTML Controls and Introducing Cascading Style Sheets**								
	1.	Creating an HTML	2	1	K3(Ap)	Demonstra	You tube	Notepad &	Short test,

		Form				tive	Videos, Form Design Practice	Web Browser	Assignment, Viva
	2.	Specifying the Action URL and Methods to Send the Form	2		K2(U)	Lecture, Problem Solving	Form Action Demo	YouTube, HTML Forms Docs	MCQ, Oral Test
	3.	Using the HTML Controls	2	1	K3(Ap)	Hands-on Training	Interactive Form Control Task	Sample HTML Forms	Discussions, Online Quiz
	4.	Inline Style, External Style Sheets	1		K2(U), K4(An)	Blended Learning	Inline vs External Styling Activity	YouTube, Style Sheet Repositories	Explaining concepts, Group Task Submission
	5.	Internal Style Sheets	1	1	K2(U)	Demonstrative	Internal CSS Practice	HTML/CSS Editors	Quiz in Nearpod, Quiz, Code Review
	6.	Style Classes, Multiple Styles	1		K2(U)	Lecture with PPT	Style Class Exercise	CSS Reference, Demo Videos	Simple Definitions, Task Evaluation
IV	**Introducing JavaScript**								
	1.	Handling Events, Using Variables in JavaScript	2	1	K3(Ap)	Flipped Classroom	Group Discussion, Event Handling Task	Online Tutorials	Code Output Test
	2.	Using Array in JavaScript, Creating Objects in JavaScript	2	1	K2(U)	Demonstrative	Assignment	YouTube, JS Array/Object Demos	Discussions, Questioning, Quiz
	3.	Using Operators	1		K4(An)	Problem Solving	Interaction in the class	E-Content-MS-Word	Seminar, Assignment
	4.	Working with Control Flow Statements	2	1	K1 (R), K2(U)	Constructivism	Interaction in the class	You tube Video	Quiz, Written Test

	5.	Working with Functions	2		K3(Ap)	Experiential Learning	Function Writing Practice	Assignment in Google Class Room	Function Demo Review
V	**JavaScript Objects**								
	1.	Window Object, Document object, Browser Object	2	1	K2(U)	Project-Based	Collaborative Learning	Interactive PPT	Short test, Quiz
	2.	Form Object, Navigator object, Screen object	2	1	K2(U)	Flipped Classroom	Peer Teaching	Interactive PPT	Questioning
	3.	Events, Event Handlers	2	1	K3(Ap)	Hands-on Activity	Event Handling Exercise	Online Tutorials and Notes	Quiz in google classroom
	4.	Forms Validations	3		K3(Ap)	Simulation	Form Validation Practice	Form Validation Videos	Final Mini Project Review

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Entrepreneurship

Activities (Em/ En/SD): Creating Web Pages and Websites

Assignment: Analyze JavaScript Objects and uploading in Google Classroom (Last date to submit: 20.8.2025)

Seminar Topic: Operators, Variables in JavaScript

Sample questions:

Part A (1 Mark)

1. To add a heading to a table, you use the <____> tag. **(K1-R, CO-1)**
2. The MIME type of a QuickTime Movie is ----------.**(K1-R, CO-1)**

   a) video/x-mov b) video/x–movie c) video/s – movie d) video/s-mov
3. Which HTML tag is used to link an external style sheet to an HTML document?**(K1-R, CO-1)**

   a) <script> b) <style> c) <link> d) <css>
4. The Browser object is a standard JavaScript object used to access the browser's history, cookies, and settings. Say “True” or “False”. **(K1-R, CO-1)**

5. Which attribute of the <link> tag specifies the location of the external style sheet?**(K1-R, CO-1)**

Part B (6 Marks)

1. How do you create a hyperlink in HTML?**(K3-Ap, CO-3)**
2. Discuss about working with tables.**(K2-U, CO-2)**
3. Analyze inline style and Internal style sheet.**(K4- An, CO-4)**
4. Describe the various operators in JavaScript.**(K2-U, CO-2)**
5. Write a short note on browser object in JavaScript.**(K2-U, CO-2)**

Part C (12 Marks)

1. Analyzethe HTML document structure with an example.**(K4-An, CO-4)**
2. Illustrate image maps with a suitable example.**(K3-Ap, CO-3)**
3. Elucidate HTML form with a suitable example. **(K3-Ap, CO-3)**
4. Discuss the looping statements with suitable examples in JavaScript. **(K3-Ap, CO-3)**
5. Discuss form validation with suitable examples.**(K5-C, CO-4)**

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. J. Anto Hepzie Bai

Department : **Computer Science**

Class : **II B.Sc Computer Science**

Title of the Course : **Elective Lab Course I: Web Technology Lab**

Semester : **III**

Course Code : **SU233EP1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total	Marks		
								CIA	External	Total
SU233EP1	-	-	2	-	2	2	30	25	75	100

Learning Objectives:

1. Design web pages using various tags.
2. Write programs using Java Script.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	recall the basic components and technologies used in web development, such as html, css and javascript.	**K1**
2.	understand and apply css definitions for document presentation.	**K2**
3.	build interactive page using html	**K3**
4.	identify, formulate and analyze problems as well as identify the computing requirements appropriate to their solutions.	**K4**
5.	develop dynamic web pages using client-sideprogramming and server-side programming.	**K6**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyze; **K6** – Create

Teaching Plan

Total Contact hours: 30 (Including Practical Classes and Assessments)

Unit	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
1	Working with Tags	2	1	K1& K2	**Inquiry-Based Learning**	In-class practice, peer feedback	Web Browser, VS Code	Create a basic HTML page using tags
2	Working with Anchor Tag	2		K3	**Demonstration**	Live coding, real-time link testing	Google Classroom, HTML Editor	Design a web page with functional hyperlinks
3	Working with Images	2	1	K3	**Demonstration Method**	Lab-based tasks with image attributes	Google Chrome, Online Image Repositories	Insert and format images in a web page
4	Working with Tables	3		K6	**Experiential Learning**	Group discussion, timetable creation	YouTube Tutorials, CodePen	Build a personal schedule using HTML tables
5	Working with Frame	3	1	K6	**Inquiry, Project-Based Learning**	Brainstorming, content linking	YouTube Videos, Web Dev Tools	Develop a multi-page site with frames
6	Working with CSS Rule	3		K3	**Project-Based Learning**	Collaborative styling activity	Notepad++, CSS Reference Sites	Style an HTML page using internal & external CSS
7	Working with Forms	3	1	K3	**Project-Based Learning**	Hands-on form design, validation trials	YouTube, W3Schools	Create and validate a complete HTML form

8	Working with Operators	3		K3	Flipped Classroom	Peer explanation, logic solving exercises	Web Browser, JavaScript Console	Answer logic questions using JavaScript operators
9	Working with Control Flow Statement	2	1	K3	**Demonstration method, Hands-on**	Code walkthrough, test case execution	Notepad, Developer Tools	Write programs using if/else, switch, etc.
10	Working with Functions	2		K3	**Demonstration Method**	Small assignments with JS functions	Browser Console, JS Documentation	Build and test JS functions with parameters

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Employability, Skill Development

Activities (Em / En /SD): Hands on Training, Project

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): NIL

Environment Sustainability activities related to Cross Cutting Issues: NIL

Sample questions

HTML

1. Create an HTML program displaying a short biography of a world leader using proper HTML structure tags.
2. Design a simple HTML page that demonstrates the use of an anchor tag to link to an external website.
3. Write an HTML program to display an image with proper alt text and alignment.
4. Create a table in HTML to display student marks with a caption and styled headers.
5. Write an HTML program using frames to divide the browser window into two vertical sections.
6. Develop a webpage applying internal CSS rules to style headings and paragraphs.
7. Create a user registration form in HTML with fields for name, email, gender, and password.

JavaScript

8. Create a JavaScript program that demonstrates the use of arithmetic and logical operators.
9. Write a JavaScript script that checks whether a number is even or odd using control flow statements.
10. Develop a JavaScript function that takes two numbers as input and returns their sum. Call the function and display the result.

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. J. Anto Hepzie Bai

Department : **Computer Science**

Class : **II B.Sc Computer Science**

Title of the Course : **Skill Enhancement Course SEC-II: Programming in PHP**

Semester : **III**

Course Code :**SU233SE1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU233SE1	-	-	2	-	2	2	30	25	75	100

Learning Objectives:

1. To design and develop dynamic, database-driven web applications using PHP version.
2. To get an experience on various web application development techniques.

Course Outcomes

Onthesuccessfulcompletion ofthecourse,studentswillbeableto:		
1.	recallandapplyPHPsyntaxtosolveprogrammingproblems.	**K1, K3**
2.	interpretandanalyzePHP codeandexplainitsbehaviour.	**K2, K4**
3.	apply PHP scripts to perform specific tasks, such as form processing ordatabase manipulation.	**K3**
4.	manipulatefiles,sessions andcookies deploy	**K3**
5.	createPHPprogramsthatusevarious PHP library functions	**K6**

K1-Remember;**K2** -Understand;**K3** – Apply;**K4** -Analyse;**K6** -Create

Teaching Plan

Total Contact hours: 30 (Including Practical Classes and Assessments)

Unit	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
1	Working with Constructor and Destructor	2	1	K3	Demonstration Method	Hands-on coding	PHP Manual, VS Code, XAMPP	Code snippet to create class with constructor & destructor
2	Factorial Number	2		K3	Inquiry-Based Learning	Logic building and discussion	W3Schools, PHP.net	Write PHP program to compute factorial
3	Swapping of two numbers	2	1	K3	Demonstration Method	Practice via pair coding	Online PHP editor, Notepad++	Submit and explain swapping logic in PHP
4	Max of three numbers in PHP	3		K2	Interactive Problem Solving	Peer review of logic	PHP Online Compiler, Stack Overflow	Write function to find the maximum of three numbers
5	PHP from Input Element Demo	3	1	K6	Project-Based Learning	Group activity with forms	Browser Dev Tools, HTML-PHP Form Tutorials	Create and validate HTML forms using PHP
6	Simple Image Upload	3		K3	Demonstration + Hands-on	File handling experimen	YouTube, PHP.net	Code and test image upload functionality

					Practice	t		
7	Dynamic Greeting Based on Time of Day	3	1	K3	Project-Based Learning	Creative thinking and testing	Browser, Localhost Environment	Create a script displaying time-based greetings
8	Palindrome or not	2		K3	Flipped Classroom	Code explanation by students	Online PHP Playground	Build a function to check if input is palindrome
9	Mathematical Calculator	3	1	K6	Project-Based Learning	UI design and backend integration	YouTube, PHP documentation	Build and test a calculator with PHP logic
10	Personal Information	2		K6	Case-Based Learning	Form design, validation, and data display	Web Browser, HTML & PHP IDE	Develop a personal info form with input validation

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Employability, Skill Development

Activities (Em / En /SD): Hands on Training, Project

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): NIL

Environment Sustainability activities related to Cross Cutting Issues: NIL

Sample questions

1. Write a PHP class Student that uses a constructor to initialize student details and a destructor to display a closing message.
2. Write a PHP function to calculate the factorial of a given number using both iteration and recursion.
3. Create a PHP program to swap two variables with and without using a third variable.
4. Write a PHP script to find the largest of three numbers entered by the user via an HTML form.

5. Design an HTML form and write a PHP script to display the submitted name, email, and mobile number.
6. Develop a PHP program that allows a user to upload an image file. Display the uploaded image on the screen.
7. Write a PHP script that displays “Good Morning”, “Good Afternoon”, or “Good Evening” based on the current server time.
8. Create a PHP function that checks if a given string is a palindrome. Test it with various inputs.
9. Build a simple PHP calculator that can perform basic arithmetic operations (Add, Subtract, Multiply, Divide).
10. Design an HTML form and write PHP code to accept personal information (name, dob, gender, email, phone), validate the data, and display it in a formatted table.

Head of the Department
V. S. Harilakshmi

Course Instructor
J. Anto Hepzie Bai

Department : **Computer Science**

Class : **III B.Sc Computer Science**

Title of the Course : **Core Course V: Relational Database Management System**

Semester : **V**

Course Code :**SU235CC1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU235CC1	4	1	-	-	4	5	75	25	75	100

Learning Objectives:

1. To understand the database systems, their architecture, and functionalities.
2. To develop PL/SQL programming skills for building robust database applications with cursors and exception handling.

Course Outcomes

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:		
1.	understandtherelationaldatabases,architecture,andapplySQLfordata operations.	**K2, K3**
2.	applynormalizationtechniquesfordataintegrityandredundancyremoval.	**K3, K4**
3.	applyadvancedSQLtechniquesforefficientdataretrievalandmanipulation.	**K3, K4**
4.	evaluatethePL/SQLprogramswithcursorsandexceptionhandling.	**K3, K5**
5.	designand normalizedatabaseschemas using ER/EER models.	**K4, K5**

K1-Remember;**K2** -Understand; **K3**-Apply;**K4** -Analyze;**K5**– Evaluate

Teaching Plan

Total Contact hours: 75 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive Level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**Relational Databases**								
	1.	Purpose of DB System, Views of data	3	1	K2(U)	Lecture Method, Conceptual Teaching	Group Discussion, Q&A	PPTs, DBMS Intro Videos	Quiz, Oral Questions
	2.	Data Models, DB System Architecture	3		K2(U)	Flipped Classroom	Think-Pair-Share	YouTube, DB Architecture Diagrams	Assignment, MCQ
	3.	Introduction to Relational Databases, Relational Model, Keys, Relational Algebra	2	1	K3(Ap)	Demonstration, Problem Solving	Relational Algebra Problem Solving	Interactive PDFs, DBMS Animations	Slip Test, Viva Voce
	4.	SQL Fundamentals and Advanced SQL	2		K3(Ap)	Hands-on Training	SQL Lab Session	SQL Practice Platforms (W3Schools, SQLZoo)	Lab Evaluation
	5.	Embedded SQL and Dynamic SQL	2	1	K3(Ap)	Lecture with PPT	Practical	e-Journals, SQL Resources	Questioning
II	**Database Design**								
	1.	ER Model, E-	2	1	K2(U)	Demonstrative, Visual	E-R	YouTube,	Diagram

		R Diagrams				Learning	Diagram Drawing	DBMS Notes	Evaluation, Test
	2.	Enhanced-ER Model	2		K3(Ap)	Inquiry-Based Learning	Hands-on EER Model Exercises	Sample EER Diagrams	Activity Submission
	3.	1NF, 2NF, 3NF	2	1	K3(Ap)	Problem Solving	Normalization Task	Case Studies	Evaluation Sheet
	4.	BCNF, Dependency Preservation	2		K4(An)	Brainstorming	Group Discussion on BCNF	Research Articles	Quiz
	5.	Multi-valued Dependencies and 4NF	2	1	K4(An)	Interactive Teaching	Dependency Tree Exercises	Recorded Lectures	Oral Test
	6.	Join Dependencies and Fifth Normal Form	2		K4(An)	Problem-Based Learning	Advanced Normal Form Analysis	DBMS Textbooks	Group Assignment
III	**Normalization of Database Tables, Introduction to SQL**								
	1.	Database Tables and Normalization	2	1	K2(U)	Lecture with Examples	Concept Mapping	e-Notes, Schema Diagrams	Quiz
	2.	The need for Normalization , Normalization Process, Higher level normal form	2		K3(Ap)	Demonstrative	Group Discussion	You tube Videos	Online Assessment
	3.	Data Definition Commands, Data Manipulation	2	1	K3(Ap)	Hands-on SQL Practice	Table Creation Exercises	SQL Trainers (Oracle LiveSQL)	Code Evaluation

		Commands							
	4.	SELECT Queries, AdditionalDataDefinition	2		K3(Ap)	Flipped Classroom	SELECT Query Challenges	W3Schools	Spot Test
	5.	Additional SELECT Query Keywords	2	1	K4(An)	Simulation	Query Writing Practice	YouTube SQL Tutorials	Online Quiz
	6.	Joining Database Tables	2		K4(An)	Demonstration	Join Task	SQL Playground	Task Evaluation
IV	**Advanced SQL: Relational SET Operators, SQL Join Operators, Sub Queries and CorrelatedQueries, SQL Functions**								
	1.	UNION, UNION ALL, INTERSECT, MINUS	2	1	K3(Ap)	Demonstrative, Problem Solving	SQL Set Operators Practice	Oracle LiveSQL, SQLZoo	Slip Test
	2.	Cross Join, Natural Join, Join USING Clause, JOIN ON Clause, Outer Join	2	1	K3(Ap)	Hands-on Training	Join Operation Lab Tasks	SQL Editors (DB Fiddle)	Viva Voce
	3.	WHERE–IN, HAVING–ANYandALL, FROM	2		K3(Ap)	Lecture cum Demonstration	Query Formation Activities	SQL Demos	Assignment
	4.	Date and Time Function, Numeric Function	3	1	K3(Ap)	Activity-Based	Function Practice	Function Charts	Task Sheet Evaluation
	5.	String Function, Conversion	3		K4(An)	Simulation	String and Conversion Exercises	SQL Code Snippets	Code Review

		Function.							
V	**PL/SQL: A Programming Language, PL/SQL CursorsandExceptions**								
	1.	PL/SQL History, Fundamentals, Block Structure, Comments	2	1	K2(U)	Lecture Method	Peer Teaching	PL/SQL Overview Videos	Quiz
	2.	Data Types, Other Data Types, Variable Declaration, Assignment Operation, Arithmetic Operators	2	1	K2(U)	Demonstrative	Data Type Exercise	PL/SQL Code Samples	MCQ Test
	3.	Cursors, Implicit and Explicit and Attributes	3	1	K3(Ap)	Problem Solving	Cursor Activity	Oracle Tutorials	Lab Evaluation
	4.	Cursor FOR loops, SELECT…FOR UPDATE, WHERE CURRENT OF Clause, Cursor with Parameters	2		K4(An)	Hands-on Practice	Cursor FOR Loop Tasks	Video Demos, Sample Codes	Slip Test
	5.	Cursor Variables, Exceptions, Types of Exceptions.	3		K2(U), K3(Ap)	Blended Learning	Exception Handling Scenarios	PDF Guides, Blog Articles	Final Lab Record Review

Course Focusing on Employ ability/Entrepreneurship/skill development: Skill Development

Activities (Em/En/SD): Evaluation through short test and Seminar

Assignment: ER Model, SQL and Relational Database Design, Normal forms(Last date to submit: 20.8.2025)

Seminar Topic:Exception Handling

Sample questions

PART A (1 Mark)

1. A Data Manipulation Language (DML) is a language that enables users to access ormanipulate data. State True or False. **(K2-U, CO-1)**

2. What is a relation in RDBMS?**(K3-Ap, CO-3)**

a) Keyb) Tablec) Rowd) Data Types

3. A sub-query is an _____ expression that is nested with in another query.**(K4-An, CO-3)**

4. The _____ authorization on a relation is required to read tuples in the relation.**(K4-An, CO-2)**

a) Drop b) Add c) Select d) Delete

5. State true or false: We cannot write a where clause under an update command.**(K4-An, CO-1)**

PART B (6 Marks)

1. Mention the widely used database system application.**(K2-U, CO-1)**

2. Summarize the built-in aggregate function supported by SQL.**(K3-Ap, CO-3)**

3. How to construct the trigger to maintain referential integrity?**(K4-An, CO-3)**

4. Illustrate the concept of BCNF and Dependency Preservation.**(K4-An, CO-2)**

5. Analyze the string functions in SQL.**(K4-An, CO-1)**

PART C (12 Marks)

6. Describe the database architecture with neat diagram.**(K2-U, CO-1)**

7. Construct the basic structure of SQL Queries.**(K3-Ap, CO-1)**

8. Analyze Data Definition Commands and Data ManipulationCommands**(K4-An, CO-3)**

9. Analyze the date and numeric functions of SQL.**(K4-An, CO-2)**

10. Analyze the different types of exception.**(K4-An, CO-1)**

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. J. Anto Hepzi Bai

Department : **Computer Science**
Class : **III B.Sc. Computer Science**
Title of the Course : **Core Course VI: Operating System**
Semester : **V**
Course Code : **SU235CC2**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU235CC2	**4**	1	–	–	**5**	5	**75**	**25**	**75**	**100**

Learning Objectives:

5. To understand the fundamental concepts of operating system

6. To analyze synchronization, scheduling, security and system calls for efficient resources management.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	describe the basic concepts, structures, and operations of an operating system.	**K1& K2**
2.	explainprocessscheduling,IPCmechanisms,andthreadmanagement techniques.	**K2**
3.	applysynchronizationtechniquesanddeadlockhandlingmethodsinan OS environment.	**K3**
4.	analyze different memory management techniques, including paging and virtual memory	**K4**
5.	evaluatefilesystemstructures,storagemanagementstrategies,and recovery mechanisms.	**K5**

K1 - Remember; **K2** - Understand; **K3**- Apply; **K4** - Analyse; **K5-** Evaluate

Teaching plan

Total Contact hours:75 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**INTRODUCTION**								
	1	Operating System-Computer System Organizations	2	1	K2(U)	Lecture with Visual Aids such as PPT, Conceptual Demonstration, Flipped Classroom.	Inquiry-Based Learning, Peer Teaching,	**MIT OpenCourseWare**: Introduction to Computer Science and Programming	Written Assignment- Oral Presentation, Conceptual Questions, CIA I
	2	Computer System Architecture-OperatingSystemOperations -Resource Management	3		K2(U)	Real world examples, interactive lectures,chalk & talk, comparison based lecture	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	**NPTEL Video Lectures**: Operating System Fundamentals - Prof. D. M. Dhamdhere / Prof. Rajib Mall	MCQ test, Visualization Task, Conceptual Quiz, CIA I

	3	Kernel Data Structures - Computing Environments.	2	1	K4(An)	KWL, Lecture with visualization, Concept-based discussion , Comparative learning	Collaborative Learning, Concept Mapping	**Geeksfor Geeks**: O S Overview Section	Oral Quiz , slip test, Assignment, CIA I.
	4	**Operating System Structure:** Operating System Services -User and OperatingSystemInterface .	3		K2(U))	Integrative teaching, Inquiry-based approach, Demonstration	Team teaching, case study, brain stroming, peer teaching,	**Operating System Concepts (Silberschatz) Companion Website**: Wiley Resources	Peer Review, Online assignment,CIA I.
	5	SystemCalls– OperatingSystemStructures	2	1		Lecture with Visual Aids such as PPT, Conceptual Demonstration, Embodied learning	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	**YouTube Lecture Series**: Gate Smashers - OS Structures & System Calls	MCQ, quiz, class test
II	**Process Management**								

	1	**Processes:** Concepts – Operations on Processes	3	1	K1(R) & K3(Ap)	Demonstration-based Learning: Concept Mapping, Flipped Classroom	Peer Instruction, Blended Learning,	**Tutorials Point OS Notes**: https://www.tutorialspoint.com/operating_system/index.htm	Open Book Test, Assignment Oral Viva, CIA I
	2	ProcessScheduling-InterprocessCommunication(IPC)– IPCinShared	3		K2(U)	Problem Solving: Model, computational thinking, case study, Brain storming	Analyse problem situation, Demonstration, case study, Peer teaching	**MIT OCW**: Scheduling Lectures	Written Assignment- Oral Presentation, ,, CIA I
	3	Memory Systems – IPC in Message-Passing Systems Passing Systems – Threads - Multithreading Models.	3	1	K3(Ap)	Context based, Collaboration, inquiry based approach, Blended Learning	Group Discussion, Mind maps, Interaction in the class room, self declared active learning	You tube video	Peer Review, Student presentation, Quiz qustioning CIA I
	4	**CPU Scheduling:** Basic Concepts Scheduling Criteria– SchedulingAlgorithms–	3		K3(Ap)	Case study method, Context based, comparative learning, collaborati	Group Disussion, Brain Storming, service learning, Interaction in the	**Real-Time Systems Resources**: RTOS Concepts	Home work, Assignment, group discussion, peer review, CIA II

						on, Lecture method	classroom, problem solving		
	5	ThreadScheduling– Real-TimeCPU Scheduling.	2			Lateral thinking, case study, performance based learning,	Collaborative learning, Group Discussion, case study	**NPTEL**: CPU Scheduling – Prof. Rajib Mall	Peer Review, Online assignment, oral viva, open book test
III	**Process Synchronization**								
	1	**Process Synchronization:Synchronization Tools:** Critical Section Problem – Peterson's Solution – MutexLocks – Semaphores –Monitors	3	1	K1(R) & K3 (Ap)	Lecture with Visual Aids such as PPT, collaboration, Lecture method, Blended Learning	Power point presentation, group discussion, mind maps, performance based learning	**Geeksfor Geeks**: Synchronization Techniques	MCQ, Discussion, Fill-in-the-blank, CIA II
	2	Classic Problems of Synchronization - POSIX Synchronization – Synchronization in Java.	2		K2(U)	Demonstration, Embodied learning, Reflective thinking, Comparitive learning	Group work, case study, mind map, self declared active learning.	**Oracle Docs – Java Synchronization**: https://docs.oracle.com/javase/tutorial/essential/concurrency/sync.html	Open Book Test, Assignment Oral Viva CIA II
	3	**Deadlocks:** System Model – Deadlock in	3	1	K3(Ap)	Flipped Classroom Brain	Demonstration,	**POSIX Threads**	Home work, Assignment,

		Multithreaded Applications – Deadlock Characterization				storming, KWL(want to know), collaboration	Group work, Analyze problem situation, peer teaching	**and Synchronization**: https://computing.llnl.gov/tutorials/pthreads/	group discussion, peer review, CIA II
	4	Methods for Handling Deadlocks – Deadlock Prevention –	2		K3(Ap)	Integrative teaching, context based , lecture method, comparative learning,	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	**YouTube – Gate Smashers/ Neso Academy**: Search for "Process Synchronization in OS"	Peer Review, Online assignment, Group Discussion, CIA II
	5	Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.	2			Inquiry based approach, KWL(What you know), Blended Learning, lateral thinking	Powerpoint presentation, Interaction in the classroom, concept mapping	**NPTEL**: Deadlocks Module – Prof. Rajib Mall	MCQ test, Visualization Task, Conceptual Quiz, CIA II
IV	**Memory Management**								
	1	**Main Memory:** Background – Contiguous Memory Allocation	2	1	K1(R) & K3 (Ap)	Constructive Learning, Inquiry-Based Learning , comparati	Powerpoint presentation, Interaction in the classroom,	**NPTEL & Gate Lectures**: Virtual Memory and Paging	Peer Review, MCQ, Orai Quiz, Open Book Test, CIA II

						ve learning, collaboration	concept mapping	NPTEL Memory Management	
	2	Paging – Structure of Page Table - Swapping	2		K2(U)	Inquiry-Based Learning, lecture Method, reflective thinking, integrative teaching, Demonstration	Inquiry-Based Learning, Peer Teaching, Group Disussion, Brain Storming, ,	**Operating System Concepts (Silberschatz)** Companion: Exercises and animations	Slip test, Discussion, class test, Assignment MCQ, Discussion, Fill-in-the-blank, CIA II
	3	**VirtualMemory:**Introduction– DemandPagingPage Replacement	3		K3(Ap)	Lecture with Visual Aids such as PPT, collaboration, Context Based	Mind map, peer teaching, Demonstration, lateral thinking	**Geeksfor Geeks**: Memory Management in OS	Presentation, homework, creative writing, group discussion,CIA II
	4	AllocationofFrames– Thrashing-–Examples	3	1	K3(Ap)	Blended Learning, Lateral thinking, case study, performance based learning,	Powerpoint presentation, concept mapping, Group Disussion,	**CS50 Harvard**: Memory	Quiz, class test, Brainstroming, Peer review, , CIA II
	5	ApplicationofI/OInterface –Kernel I/O Subsystem – Streams.	2			Brain storming, KWL(What did you learn),	service learning, Interaction in the classroom	Online notes	Seminars, oral test, quiz questioning in the classroom, CIA II

						collaboration			
V	STORAGE MANAGEMENT								
	1	**File System Interface:** File Concept – Access Methods– DirectoryStructure	3	1	K2(U)	Demonstration-based Learning: Concept Mapping, Brain storming, Reflective thnking	Inquiry-Based Learning, Peer Teaching, Brain Storming, service learning,	**MIT OCW**: File Systems	Student presentation, online assignment, quiz, assignment,,mcq, CIA II
	2	Protection–Memory-MappedFiles.	2		K2(U)	Filpped class room, Inegrative thinking, context based, comparative learning	Interaction in the classroom, Powerpoint presentation, Group Discussion,	**Geeksfor Geeks**: File System Implementation	Slip test, peer review, oral quiz, group discussion, homework, open book test, CIA II
	3	**File SystemImplementation:** FileSystemStructure	2		K4(An)	Integrative teaching, Inquiry-based approach, Demonstration, Lecture method, Lateral thinking	Brain storming, case study, Team teaching	**Linux File System Docs**: https://tldp.org/LDP/Linux-Filesystem-Hierarchy/html/	Quiz, class test, Brainstroming, Peer reviewMCQs (CIA II

	4	FileSystemOperations – Directory Implementation – Allocation Methods –	3	1	K3(Ap)	Case study method, Context based, comparative learning, collaboration, Lecture method	Mind map, peer teaching, Demonstration, lateral thinking	**Tutorials Point File Management**: https://www.tutorialspoint.com/operating_system/os_file_system.htm	Home work, Assignment, group discussion, peer review,, CIA II
	5	Free Space Management – Efficiency and Performance – Recovery.	2		K4(An)	Lecture with Visual Aids such as PPT, collaboration, Context Based	Group Disussion, Brain Storming, service learning, Interaction in the clasroom	**DigitalOcean Tutorials – Linux File Systems and Storage** https://www.digitalocean.com/community/tutorials *(Search: "File system")*	Brain storming, class test, oral presentation, Discussion, quiz,, CIA II

Textbooks:

1 Silberschatz, A., Galvin, P. B., Gagne, G., 2018. *Operating System Concepts*, (10th Edition), Wiley, Hoboken, New Jercy.
2. Tanenbaum,A.S.,2014.*ModernOperatingSystems*,(4th Edition), Pearson,Boston,USA.

Course Focussing on Employability/ Entrepreneurship/ Skill Development: **Employability, Skill Development**

Activities (Em / En /SD):

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): - Environment Sustainability activities related to Cross Cutting Issues:-

Assignment: Kernal Architecture(Last date to submit – example: 01-09-2025)

Sample Questions

Part A (1 mark)

1. Which one is *not* a valid CPU scheduling algorithm? (K1)
2. State True/False: Paging uses segmentation technique. (K2)
3. What is a process control block? (K1)
4. In demand paging, a page fault occurs when... (K3)
5. The LRU algorithm replaces... (K4)

Part B (6 marks)

1. Describe the five-state process model. (K1)
2. Illustrate the difference between threads and processes. (K3)
3. What are semaphores and their usage? (K2)
4. Show the working of the LRU algorithm with an example. (K4)
5. Evaluate the use of virtual memory. (K5)

Part C (12 marks)

1. Explain deadlock prevention and avoidance techniques. (K2)
2. Describe the working of paging and segmentation. (K3)
3. Derive and explain the Banker's Algorithm with example. (K3)
4. Analyze the difference between I/O buffering strategies. (K4)
5. Evaluate CPU scheduling algorithms using Gantt chart. (K5)

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. B. S. Saravana Bala

Department : **Computer Science**

Class : **III B.Sc Computer Science**

Title of the Course : **Core Lab Course V: Relational Database Management System Lab**

Semester : **V**

Course Code : **SU235CP1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total	Marks		
								CIA	External	Total
SU235CP1	-	1	4	-	4	5	75	25	75	100

Learning Objectives:

1. TocreateandperformbasicoperationwithMYSQL.
2. TointeractwithMYSQLbyusingnestedqueries,setofaggregateoperationsandviews.

Course Outcomes

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:		
1.	apply SQL commands to create, modify, and manipulate tables in Oracle.	**K2 &K3**
2.	demonstratesetoperationsandaggregatefunctionsfordata analysis.	**K3**
3.	implementvariousSQLjoinsandnestedsubqueriesforcomplex queries.	**K3**
4.	developPL/SQLprogramsusingloops,triggers,andconditions.	**K4**
5.	validatedataentryandautomatedataprocessingusingPL/SQL.	**K4**

K1-Remember;**K2** -Understand;**K3**– Apply; **K4**-Analyze

Teaching Plan

Total Contact hours: 75 (Including Practical Classes and Assessments)

Unit	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
1	Basic MYSQL operations	5	1	K3	Demonstration Practice-Based	SQL Execution Practice	MySQL Tools, W3Schools	Lab Task Evaluation
2	SetOperations	5		K3	Hands-on Learning	Coding Task, Pair Programming	SQL Online IDEs	Spot Test, Viva
3	Aggregate Functions	5	1	K3	Activity-Based	Group Exercise	MySQL Aggregate Docs	Performance Review
4	JoinOperations	5	1	K4	Demonstrative	Join Logic Tasks	SQLZoo, Code Snippets	Slip Test
5	NestedSubqueries	5	1	K4	Simulation	Debugging Subquery Errors	SQL Sample Queries	Code Debugging Evaluation
6	PL/SQLprogramusing FORloop	5	1	K4	Problem Solving	Code Construction Activity	PL/SQL Editor	Code Review, Oral Test
7	Triggers	5	1	K5	Constructivist	Trigger Design Challenge	Oracle Docs, Blogs	Output-Based Evaluation

8	ValidatetheDataEntryUsingTriggers	5	1	K5	Case-Based Learning	Case Validation Task	YouTube Tutorials	Final Output Verification
9	PL/SQLprogramusingIf-Elsestatement	5	1	K4	Demonstration	Conditional Coding Activity	PL/SQL PDFs	Task Review
10	PL/SQLprogramusingWhileloop	5	1	K4	Practice-Based	Iterative Problem Solving	Oracle LiveSQL	Code Submission, Viva
11	Integrity Constraints	5	1	K3	Lecture + Demo	Schema Constraint Demo	SQL Reference Sheets	MCQ Test
12	Sequence Creation	5	1	K3	Demonstrative	Sequence Practice	SQL Playground	Practical Assignment
13	Create table with Foreign Key	3	1	K3	Hands-on Training	Foreign Key Exercises	YouTube, Notes	Code Verification

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Employability, Skill Development

Activities (Em / En /SD): Hands on Training, Project

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): NIL

Environment Sustainability activities related to Cross Cutting Issues: NIL

Sample questions

1. Create a database named CollegeDB and a table Student with the following fields:

   StudentID (INT, PK), Name (VARCHAR), Age (INT), Department (VARCHAR) . Insert at least 5 records into the student table.

2. Create two tables: Department A and Department B with a common structure. Insert at least 3 records each and perform the following:
   a) Display all unique records using UNION b) Display common records using INTERSECT (simulate if not supported)
   c) Display all records including duplicates using UNION ALL
3. Create a table Marks with columns StudentID, Subject, Marks.
   Write queries to:
   a) Calculate average marks b) Find the highest mark in each subject c) Count the number of students who scored more than 60
4. Create two tablesEmployees(EmpID, Name, DeptID) and Departments(DeptID, DeptName).
   Write a query to display the employee names along with their department names using JOIN.
5. Create a table Products(ProductID, Name, Price).
   Write a query to display all products with a price greater than the average price using a subquery.
6. Write a PL/SQL program using a FOR loop to print the squares of numbers from 1 to 10.
7. Create a trigger on the Student table that logs any deleted record into a new table called Student_Audit with timestamp.
8. Write a BEFORE INSERT trigger to prevent inserting a NULL value in the Name column of the Student table.
9. Write a PL/SQL program to read a number and print whether it is even or odd using IF-ELSE statement.
10. Write a PL/SQL program using a WHILE loop to compute the factorial of a given number.
11. Create a table Customer(CustomerID, Name, Email, Age) with appropriate PRIMARY KEY and CHECK constraint (Age > 18).
12. Create a sequence Emp_Seq starting at 1000 with increment of 5. Use it to insert 5 new employee IDs into an Employee table.
13. Create two tables: Course(CourseID, CourseName) and Enrollment(EnrollID, StudentID, CourseID).
    Apply foreign key on CourseID in the Enrollment table and insert relevant data.

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Ms. J. Anto Hepzie Bai

Department : **Computer Science**
Class : **III B.Sc. Computer Science**
Title of the Course : **DISCIPLINE SPECIFIC ELECTIVE I: a) COMPUTER NETWORKS**
Semester : **V**
Course Code : **SU235DE1**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SP231CC2	4	–	–	–	3	4	60	25	75	100

Learning Objectives:

1. To understand the basics of data communication and networking models
2. To differentiate and analyze the various network model layers.

Course Outcomes

On the successful completion of the course, student will be able to:		
1	recall the network models, signals and the functions of various layers	K1
2	summarize the working of network models and its layers	K2
3	utilize error control methods and routing techniques	K3
4	examine the functions of network layer, transport layer and application layer	K4
5	Evaluate network architectures and the significance of each OSI layer	K5

Teaching plan

Total Contact hours: 60 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Teaching Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**Data Communication**								
	1	Data Communication - Networks	2	1	K1 (R)	Lecture with PPT	Concept Mapping.	Power point slides	Oral Presentation
	2	The Internet	2		K2(U)	Flipped Classroom	Group Discussion	Video Lecture	Quiz
	3	Protocols and Standards	1	1	K3(Ap)	Collaborative Learning	Collaborative Learning, Concept Mapping	E -Content (MS-Word)	Asking Questions
	4	OSIModel- Layers in OSI Model	2		K5(E)	Blended Learning	Problem-Based Learning, Case Study Analysis	Youtube Videos	Open book Test
	5	TCP/IP Protocol Suite, Addressing	2	1	K5(E)	Concept-based discussion	Problem solving	Online Tutorials	Assignments
II		**Data and Signals**							
	1	AnalogandDigital-DigitalSignals	1	1	K4(An)	Lecture using Chalkand talk	Inquiry based Learning	Interactive PPT	Oral Quiz

	2	TransmissionImpairment	2		K5(E)	Computational thinking	Using computational techniques for solving problems	E-Content (MS-Word)	Questioning in the class room
	3	Performance-Multiplexing	2	1	K5(E)	Integrative Teaching	Analyze problem situation	You tube Video	Observation note
	4	Guided Media-UnguidedMedia.	2		K4(An)	Reflective Thinking	Skill based course	E-Content (MS-Word)	Group discussion
	5	Switching:CircuitSwitchedNetworks-DatagramNetworks-VirtualCircuit Networks	2	1	K4(An)	Project Based	Practical	Powerpoint	Open book exam
III		**Data Link Layer**							
	1	Error Detection and Correction	2	1	K2 (U)	Collaborative Learning	Group discussion	Notes and Slides	Observation note
	2	Introduction - Block Coding: Error detection, Error correction	2		K3 (Ap)	Conceptual Demonstration	Seminar	PPT	Presentation
	3	Data Link Control: Framing	1	1	K5(E)	Inquiry based approach	Analyze problem situation	Discussion Forum(Google class room)	Creative writing
	4	Flow and Error Control - Protocols	2		K3 (Ap)	Coopeative Learning, Project based	Debates	PPT	Group discussion
	5	Noiseless Channels - Noisy channels.	2	1	K5(E)	Concept-based Teaching	Think-Pair-Share	NPTEL / SWAYAM Lecture	**MCQ Quiz** (via Google Form)

IV		**Network Layer**							
	1	Introduction to Network Layer	1	1	K2(U)	Context Based, Blended Learning	Group discussion, Model making	Using E-Book	Short Assignment
	2	Logical Addressing: IPv4 Addresses - IPv6 Addresses	2		K3 (Ap)	Lecture-cum-Demonstration Method	Hands-on Activity	Online Video Lectures	Peer Teaching
	3	Delivery – Forwarding	2	1	K4 (An)	Problem Based	Assignment	Submit the assignment in Google Class Room	Online Assignment
	4	Unicast Routing Protocols – Multicast Routing protocols	2		K5(E)	Demonstrative, Inquiry-Based	Problem Solving in Pairs	Online Video Tutorials	Viva or Presentation
	5	Transport Layer – UDP, TCP, Congestion, Congestion Control	2	1	K5(E)	Flipped Classroom	Solving problems	Discussion with PPT	Short Questions
V		**ApplicationLayer**							
	1	DomainNameSpace - DNSinthe Internet	1	1	K2U)	Problem Based, Simulation	Group analysis	PPT	Class test
	2	ElectronicMail - FileTransfer	2		K3 (Ap)	Case Study, Blended Learning	Peer review, Group discussion	MS-Word	Open Book exam
	3	WWW:Architecture	2	1	K4(An)	Context Based, Inquiry-	Discussion	You tube videos	Short answer test

						Based			
	4	Web Documents - HTTP.	2		K5(E)	Inquiry - Based	Problem solving	HTML Editor window	Slip test
	5	Examples of Web documents using HTML	2	1	K5(E)	Case study method	Solving problems	Powerpoint	Group Presentation

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Activities (Em / En /SD): Employability

1. To create Network Topology Simulation (Group Activity)
2. Packet Switching Role Play

Assignments: 1.TCP/IP Protocol Suite, Addressing :(25-07-2025)

2.Network Layer - Delivery, Forwarding(Last date to submit :15-08-2025)

Seminar Topics: Block Coding: Error detection, Error correction

Part A (1 mark)

1.----------is the process of sending data electrically from one location to another (K2-U, CO-1)
a). Operating system (b). Data communication (c). System program (d) system calls
2.What is the minimum header size of an IP packet? (K2-U, CO-1)
(a) . 16 bytes (b). 10 bytes (c). 20 bytes (d) 32 bytes
3.Which of the following tasks is not done by data link layer? (K3-Ap, CO-2)
(a). Framing (b). error control (c). flow control. (d). channel coding
4.Which of the following protocols operates at the Transport Layer?
a) IP b) TCP c) ARP d) ICMP
5.The network layer is concerned with _____ of data. (K3-Ap, CO-5)
(a). bits (b). frames (c). packets. (d). bytes

Part B (6 marks)

1.Differentiate OSI and TCP/IP (K4-An, CO-1)
2.Explain about circuit switched network. (K2-U, CO-2)

3.Explain about flow control in Data Link Layer. (K3-Ap, CO-2)
4.Elaborate about User Datagram Protocol (UDP) (K5-E, CO-4)
5.Discuss with DNS (K5-E, CO-5)

Part C (12 marks)

1.Explain the layers in OSI model in detail? (K1-U, CO-1)
2.Briefly explain about packet switching network. (K3-Ap, CO-2)
3.Discuss the responsibilities of data link layer? (K3-Ap, CO-3)
4.Explain about IPv4 Addressing. (K5-E, CO-4)
5.Analze about Web Documents with example. (K6-C, CO-5)

Head of the Department
Dr. V. S. Harilakshmi

Course Instructor
Dr. F. Fanax Femy

Department : **Computer Science**
Class : **III B.Sc. Computer Science**
Title of the Course : **Discipline Specific Elective II: Virtual and Augmented Reality**
Semester : **V**
Course Code : **SU235DE4**

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
SU235DE4	**4**	**-**	**-**	**-**	**3**	**4**	**60**	**25**	**75**	**100**

Learning Objectives:

1. To provide knowledge on basic principles of virtual & augmented reality.
2. To have the ability to use its technology as a platform for real-world applications.

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	outline the fundamental terminologies, techniques, and applications of VR and AR.	**K1**
2.	describe different architectures and principles of VR and AR systems	**K2**
3.	**utilize** appropriate hardware and software technologies for different VR and AR applications.	**K3, K4**
4.	**analyze** the impact of VR and AR technologies on human perception and cognition	**K5**
5.	**evaluate** the significance of VR/AR content and interactions in solving real-world problems.	**K6**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyze; **K5** - Evaluate; **K6** – Create

Teaching plan

Total Contact hours*: 60 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Method
I									
	1	The Three I's of VR – History –	2	1	K1 (R)	Lecture with Visual Aids, Timeline-Based Teaching	Think-Pair-Share, Gamified Quiz	YouTube: VR History, Interactive Timeline tools	Quiz, Timeline Assignment, Conceptual Q&A, CIA I
	2	Early Commercial VR	1		K1 (R)	Case-Based Learning, Domain-Specific Examples	Collaborative Problem Solving, Design Thinking	VR in Medical/Engineering Fields – Research Articles	Case Study Rubric, Peer Review, CIA I
	3	Components of a VR System	2	1	K2 (U)	Demonstration-Based Learning, Infographic Pedagogy	Diagram Mapping, Peer Teaching	Slides, Wikipedia /VR Tech, Google AR/VR resources	Group Presentation, Peer Evaluation Rubric, CIA I
	4	Input Devices: Trackers, Navigation, and Manipulation Interfaces	2		K3 (Ap)	Simulation-Based Learning, Hands-on Demo	Group Work, Case Study (Gaming/ Training Simulators)	VR Input Simulators, YouTube, Unity Inputs	Worksheet, Case Study Report, Viva, CIA I
	5	Gesture Interfaces	3		K4 (An)	Analogy-Based	Brainstorming,	Gesture Recognitio	Quiz, Use-case Comparison

						Teaching, Interactive Simulation	Concept Mapping	n Tools (Leap Motion), Research Articles	Table, CIA I
II									
	1	Graphics Displays – Sound Displays – Haptic Feedback	3	1	K2 (U)	Exploratory Lab Teaching, Demonstration using Emulators	Tool-Based Exploration (e.g., Unity, Blender), Device Demonstration Projects	YouTube (AR/VR Displays), Unity Simulation Tools	Practical Demonstration, Viva, Concept Mapping, CIA I
	2	Computer Architecture for VR: Rendering Pipeline –	2		K3 (Ap)	System Design Explanation with Flow Diagrams	Hands-on Simulation of Rendering Pipeline, Group Debugging Task	Architecture Diagrams, OpenGL Tutorials, NVIDIA VRWorks	Assignment on Rendering Flow, Diagram Annotation Quiz, CIA I
	3	PC Graphics	2	1	K3 (Ap)	Visual-Based Teaching, Demo-Oriented Sessions	Hands-on Practice, Graphic Design Mini-Task	OpenGL, Unity, WebGL Tutorials, YouTube (e.g., Brackeys), Khan Academy CS Videos	Lab Exercise Evaluation, Design Output Review, CIA I
	4	VR Programming: Toolkits and Scene Graphs	2	1	K3 (Ap)	Code-based Teaching, API	Pair Programming,	Unity Docs, Scene	Code Walkthrough, Debugging Task,

						Documentation Reading	Toolkit Exploration (Unity3D, Vizard)	Graph Repositories	CIA I
	5	Traditional Applications of VR	1		K4 (An)	Case Study-Based Learning, Industry Focus	Research Review, Use Case Analysis	IEEE Xplore, ACM Digital Library – VR Cases	Analytical Report, Application Mapping, CIA I
	6	Emerging Applications of VR	2	1	K4 (An)	Future-Ready Teaching, Tech Trends Presentation	Idea Pitches, Mini Project Proposals	VR in Healthcare, VR for Smart Cities – Industry Reports	Project Report, Presentation Rubric, CIA I
III									
	1	Augmented Reality: Introduction –	2	1	K1 (R)	Concept-Driven Lecture, Framework Comparison, IDE Exploration	AR App Demos, Real-World Mapping	YouTube (Basics of AR)	Conceptual Quiz, AR Prototype Assessment,
	2	Types of AR	1		K4 (An)	Comparative Case Study, Concept Mapping	Group Presentation on AR Types, AR Experience Reflection	ARType Exploratory Videos (YouTube), ARToolkit Demos, ResearchGate Articles, Google	Comparison Chart Submission, Quiz, CIA I

								Scholar	
	3	Augmented Reality Concepts: Working Principle of AR Working Principle	2	1	K1 (U)	AR Demonstration Videos, Design-Based Learning, Plugin Tutorials	Real-World Mapping, Group Work, IDE Walkthrough	Mobidev AR Blog, Snap Lens Studio, Unity Tutorials	ARPrinciple Worksheet, CIA II
	4	Concepts related to AR	2		K2 (U)	Interactive Storyboarding, Component Dissection	Storyboard Design, AR Feature Mapping	Unity ARToolkit, Vuforia SDK Docs	Storyboard Submission, Review Report, CIA II
	5	Ingredients of an Augmented Reality Experience	2	1	K3 (Ap)	Tool-based Teaching, Emulator Use	Hardware/ Software Comparative Study	Google ARCore, Apple ARKit Resources	Hardware Analysis, SDK Usage Test, CIA II
IV									
	1	Augmented Reality Hardware–	1	1	K3 (Ap)	Multisensory Teaching, Tool Integration	Group Projects on Immersive Design	Unity + AudioMixer + 3D Design Models	Content Evaluation Rubric, CIA II
	2	Augmented Reality Software	1		K4 (An)	Interaction Design Methods, UI/UX Practices	Prototype Testing, Heuristic Evaluation	HCI Toolkit, Interaction Design Foundation	User Flow Mapping, Wireframe Test, CIA II
	3	Software to create content for AR Application	2	1	K3 (Ap)	App Simulation, SDK Tutorials	Mobile App Mini-Project	ARCore, ARKit, Android Studio	Demo Evaluation, Viva, CIA II

	4	Tools and Technologies	2		K5 (E)	Sector-Based Exploration, Case Study Teaching	Team Project on Application Mapping	Use Cases: Education, Retail, Healthcare	Case Study Report, Presentation, CIA II
	5	Collaborative Augmented Reality	2	1	K6 (C)	Collaboration-Focused Projects, Real-Time Demos	Group Simulation Task, Peer Evaluation	Shared AR Apps, Multi-user SDKs	Prototype Evaluation, Peer Feedback, CIA II
V									
	1	Augmented Reality Content: Introduction	2	1	K2 (U)	Scenario-Based Learning, Debate and Role Play	Discussion Forums, Policy Review	EFF.org, GDPR and XR Policies	Debate Rubric, Group Report, CIA II
	2	Creating Content for Visual, Audio, and other senses	3		K3 (Ap)	Cognitive Science Mapping, Visual Illusions	Psych Experiment Simulation	Cognition & Technology Journals	Case Review, Group Interpretation Task, CIA II
	3	Interaction in AR	1	1	K3 (Ap)	Rubric Design Activity, UX Review	AR/VR Evaluation Matrix Building	Designing AR UX Paper (ACM)	Evaluation Matrix, Experience Testing Report, CIA II
	4	Mobile Augmented Reality: Introduction	1		K2 (U)	Cross-disciplinary Teaching, Research Integration	Infographic Design, Campaign Posters	Ethics White Papers, Social Media AR Cases	Poster Evaluation, Societal Impact Essay, CIA II
	5	Augmented Reality Applications Areas	2	1	K4 (An)	Trend Forecasting Activity, Research Projects	Tech Talk Presentation, AI Integration	Road toVR, Gartner Reports	Trend Report, Mini Research Paper, CIA II

Course Focussing on Employability/ Entrepreneurship/ Skill Development: Activities (Em / En /SD): SkillDevelopment

1. Building a Virtual Tour Using Unity
2. Creating a Basic Augmented Reality Experience using Unity and Vuforia.

Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): - Environment Sustainability activities related to Cross Cutting Issues:-

Assignments:

1 .Case Study on the impact of VR/AR in skill training for rural communities(Last date to submit :14-07-2025)

2. Design an AR-based solution for environmental education (Last date to submit : 05-09-2025)

Seminar Topics: **Ethical and Privacy Concerns in AR Applications, The Future of VR in Education and Healthcare**

Part A – (1 Mark)

1. What does VR stand for? (K1–R, CO-1)
   a) Variable Reality b) Virtual Reality c) Verified Reality d) Visual Rendering
2. What are the three I's of VR? (K1–R, CO-1)
   a) Interaction, Interface, Input b) Immersion, Interaction, Imagination c) Input, Insight, Info d) Immersion, Interaction, Imagination
3. Mention one early commercial VR technology. (K1–R, CO-1)
   a) Meta Quest b) Google Glass c) Sensorama d) HoloLens
4. What is haptic feedback in VR? (K2–U, CO-2)
   a) Visual effect b) Audio tone c) Touch-based response d) Motion tracking
5. Which of the following is an AR development framework? (K2–U, CO-3)
   a) NumPy b) TensorFlow c) ARCore d) PyTorch
6. Name any two input devices used in VR. (K1–R, CO-3)
   a) Keyboard and Mouse b) Headset and Tracker c) Webcam and Speaker d) Router and Switch
7. What does AR stand for? (K1–R, CO-1)
   a) Audio Rendering b) Augmented Reality c) Alternate Reality d) Angular Rendering
8. Give an example of a VR programming toolkit. (K2–U, CO-3)
   a) Vuforia b) Unity3D c) Android Studio d) PyTorch
9. What is a scene graph? (K2–U, CO-3)
   a) Data tree of VR scenes b) Audio manager c) Rendering shortcut d) 3D printer graph

Part B (6 Marks)

1. Differentiate between Virtual Reality and Augmented Reality.(K2–U, CO-1)
2. List and describe any three components of a VR system.(K2–U, CO-2)
3. Explain the concept of gesture interface with an example.(K3–Ap, CO-3)
4. What are the functions of haptic devices in a VR environment?(K3–Ap, CO-3)
5. Describe the architecture of a basic VR system. (K4–An, CO-2)
6. Compare and contrast traditional and emerging VR applications.(**K4–An, CO-4)**

Part C – (12 Marks)

1. Explain in detail the architecture and components of a VR system with suitable diagrams.**(K4–An, CO-2)**
2. Discuss various input and output devices used in VR and how they contribute to immersion.**(K4–An, CO-3)**
3. Describe the rendering pipeline and its significance in VR/AR graphics generation.**(K4–An, CO-3)**
4. Analyze the applications of Augmented Reality in at least three different domains.**(K5–Ev, CO-5)**
5. Elaborate on the tools and technologies used to create AR content.**(K4–An, CO-3)**

Head of the Department
Dr.V. S.Harilakshmi

Course Instructor
Dr. J. Jackulin Reeja

Department : Computer Science
Class : III B.Sc. Computer Science
Title of the Course : PROFESSIONAL COMPETENCY SKILL I- CAREER SKILLS
Semester : V
Course Code : UG235PS1

Course Code	L	T	P	S	Credits	Inst. Hours	Total Hours	Marks		
								CIA	External	Total
UG235PS1	1	1	–	–	**2**	**2**	**30**	**25**	**75**	**100**

Learning Objectives:

7. To develop effective communication and interpersonal skills to enhance workplace interactions and teamwork
8. To build job readiness skills such as resume writing, interview techniques, and professional ethics

Course Outcomes

On the successful completion of the course, students will be able to:		
1.	Outline key career skills such as communication, teamwork, and problemsolving	**K1(R)**
2.	Explain the importance of professional ethics, workplace etiquette, and time management	**K2(U)**
3.	Demonstrate effective resume writing, interview techniques, and job application strategies	**K3(AP)**
4	Assess different workplace scenarios to determine appropriate communication and conflict resolution strategies	**K4(A)**
5	Develop a personal career plan with clear goals, skills assessment, and strategies for professional growth	**K5(E)**

K1(R) - Remember; **K2(U)** - Understand; **K3(AP)**- Apply; **K4(A)** - Analyse; **K5(E)-** Evaluate

Teaching plan

Total Contact hours:30 (Including lectures, assignments and tests)

Unit	Module	Topic	Teaching Hours	Assessment Hours	Cognitive level	Pedagogy	Student Centric Method	E-Resources	Assessment/ Evaluation Methods
I	**Linguistic Skills**								
	1	Vocabulary, Resume Writing	1	1	K3(Ap)	Lecture using chalk and talk, Constructivism	Vocabulary Skills, Life Skill training	MS-word	OralTest, Homework, CIA I
	2	Report Writing	1		K1(R)	Reflective Thinking	Using Visual Models, Analyze Problem Situation	PPT	Creative writing, CIA I
	3	Technical Writing	1		K2(U)	Discussion Assignment	Guided Library References, Assignment	Google class room	Assignment, peer review, CIA I
	4	Agenda Preparation, Preparing Minutes	1		K5(E)	KWL, Context based	Inquiry based learning, Simulation	Blogs	Class test, CIA I.

	5	E-mail	1		K5(E)	Blended Learning	Practicals	YouTube Videos	Online Assessment, CIA I.
II	**Employability Skills**								
	1	Social Etiquette, Telephone Etiquette	1	1	K2(U)	Constructivism, PPT	TeamTeaching, Interaction in the class room.	PPT	Oral Quiz, CIA I
	2	Interview Skills	1		K3(Ap)	Lecture method, Demonstration	Inquiry based learning	YouTube Videos	Students Presentation, CIA I
	3	Types of Interviews	1		K3(Ap)	Intergrative teaching, Assignment	Discussion, Assignment	MS-word	Assignment, peer review, CIA I
	4	Mock Interview	1		K3(Ap)	Simulation	Role Play	External links	Oral Presentation, CIA I.
	5	Group Discussion	1		K1(R)	Collaboration	Group Work	Self prepared content	Group Discussion, CIA I.
III	**Digital Capabilities**								

	1	Digital Learning, Digital Participation	1	1	K5(E)	Blended Learning	Discussion	YouTube Videos	Quiz, CIA I.
	2	ICT Proficiency	1		K5(E)	Lecture method,Brainstoming	Life Skill training	MS-word	MCQ, CIA I.
	3	Creative Production	1		K1(R)	Constructive Learning	Mind map	External links	Presentation, CIA I.
	4	Digital Identity	1		K5(E)	Context based	Peer Instruction, Blended Learning	PPT	Online Assessment, CIA II.
	5	Digital well-being	1		K5(E)	Integrated Learning	Brainstorming	Google Class room	Brain Storming, CIA II.
IV	**Body Language**								
	1	Defining Body Language, Scope and Relevance	1	1	K1(R)	Lecture method, Discussion	Lateral Thinking	External link	Peer Review, CIA II.

	2	Proxemics, Oculesics	1		K4(A)	KWL, Demonstration	Brainstorming, Interaction in the class room	PPT	Open Book test, Exam Questions, CIA II.
	3	Haptics, Kinesics	1		K4(A)	Intergrative teaching, PPT	Brain Storming	PPT	Oral Quiz, CIA II.
	4	Paralanguage, Chronemics	1		K4(A)	Context based, Demonstation	Inquiry based learning	YouTube Videos	Surprise test, CIA II.
	5	Chromatics and Olfactics	1		K3(Ap)	Reflective thinking, comparative learning	Discussion, peer teaching	MS-word	Slip test, CIA II.
V	**Coping Mechanisms**								
	1	Goal Setting, Emotional Intelligence	1	1	K5(E)	Constructivism, Brainstorming	Group Discussion Interaction in the classroom	External link	MCQ, CIA II.
	2	Team Management	1		K1(R)	Cooperative Learning	GroupWork	PPT	Group Discussion, CIA II.

	3	Stress Management Time Management	1		K2(U)	Lecture method, Simulation	Analyze Problem Situation Hands on training	MS-word	Quiz, CIA II.
	4	Leadership Skills	1		K5(E)	Integrative Teaching	Work power Activities	YouTube Videos	Presentation, CIA II.
	5	Problem solving Skills, Decision Making.	1		K1(R)	Problem solving	Solving Problems , Lateral Thinking	PPT	Brain Storming, CIA II.

Course Focussing on Employability, Communication, and Self-Development

Activities (Em / En /SD): Resume Writing, GD, Interview Practice, Goal Planning
Course Focusing on Cross Cutting Issues (Professional Ethics/ Human Values/Environment Sustainability/ Gender Equity): Professional Ethics, Time Management
Assignment: Types of Interviews and Technical Writing(Last date to submit – example: 01-09-2025)
Sample questions

Part A (1 Mark)

1. Which of the following is a feature of a good resume? **(K-3, CO-3)**
   a) Includes irrelevant personal details
   b) Uses clear and concise language
   c) Is handwritten for a personal touch
   d) Avoids including any contact information
2. What is considered proper telephone etiquette during a professional call? **(K-2, CO-4)**
   a) Speak unclearly to sound casual
   b) Interrupt the caller regularly
   c) Answer with a polite greeting and identify yourself
   d) Hang up without saying goodbye

3. Which of the following best describes digital well-being? **(K-2, CO-5)**
   a) Using technology all day without breaks
   b) Ignoring digital identity
   c) Maintaining healthy habits while using digital devices
   d) Sharing all personal information online
4. What does 'proxemics' in body language refer to? **(K-2,CO-2)**
   a) Tone of voice
   b) Use of touch
   c) Use of space and physical distance
   d) Eye movement
5. What is the main purpose of goal setting in career planning? **(K-5 , CO-5)**
   a) To delay decision-making
   b) To create stress and pressure
   c) To provide direction and motivation
   d) To eliminate all future challenges

Part B (6 Marks)

1. Write any three important sections of a Professional resume. **(K-2, CO-3)**
2. Describe two common etiquette rules to follow in a Group discussion. **(K-1, CO-4)**
3. What are the benefits of using Digital tools in education? **(K-3, CO-3)**
4. Define 'paralanguage' and explain its importance in communication. **(K-4, CO-2)**
5. List three time management strategies suitable for students. **(K-5, CO-5)**

Part C (12 Marks)

1. Explain the structure and content of Technical Writing. **(K-2, CO-1)**
2. Discuss about Interview skills and types of Interview. **(K-3, CO-3)**
3. Describe about Digital participation and Digital Identity.**(K-4, CO-4)**
4. Discuss the role of body language and proxemics in effective workplace communication. ***(K-4, CO-2)***
5. Evaluate the impact of emotional intelligence and leadership on team management. **(K-5, CO-5)**

Head of the Department
Dr. V.S. Hari Lakshmi

Course Instructor
Ms. Nitha Justin