UNDER GRADUATE PROGRAMME-B.SC COMPUTER SCIENCE

CHOICE BASED CREDIT SYSTEM (CBCS PATTERN)

(For the candidates admitted from the academic year 2023-24 onwards)

SEMESTER	PART	COURSE CODE	TITLE OF THE COURSE	NATURE	IH	CP	EXAM HOURS	EXAM MARKS		
								CIA	ESE	TOTAL
I	Part I	23UTAM101/ 23UHIN101/ 23UFRE101	LANGUAGE – TAMIL/HINDI / FRENCH	LAN	6	3	3	25	75	100
	Part II	23UENG101/ 23UAEN101	ENGLISH – GENERAL ENGLISH / ADVANCED ENGLISH	ENG	6	3	3	25	75	100
	Part III	23UCS1C01	CORE: C AND DATA STRUCTURES ***(Employability)***	CC	5	5	3	25	75	100
		23UCS1CP1	CORE PRACTICAL: C AND DATA STRUCTURES ***(Employability)***	CC	6	3	3	25	75	100
		23UMA1A13	ALLIED – NUMERICAL METHODS	GEN	5	4	3	20	55	75
	Part IV	15UVAL101	VALUE EDUCATION	AEC	2	2	2	-	50	50
II	Part I	23UTAM202/ 23UHIN202/ 23UFRE202	LANGUAGE - TAMIL/HINDI/FRENCH	LAN	6	3	3	25	75	100
	Part II	23UENG202/ 23UAEN202	ENGLISH - GENERAL ENGLISH / ADVANCED ENGLISH	ENG	6	3	3	25	75	100
	Part III	23UCS2C02	CORE:COMPUTER ORGANIZATION AND ARCHITECTURE ***(Skill Development)***	CC	4	4	3	25	75	100
		23UCS2C03/ 23UCA2C03/ 23UIT2C03	CORE: PYTHON PROGRAMMING ***(Employability)***	CC	4	4	3	25	75	100
		23UCS2CP2	CORE PRACTICAL: PYTHON AND BIO INFORMATICS PROGRAMMING ***(Employability)***	CC	3	2	3	25	75	100
		23UMA2A12	ALLIED: OPERATIONS RESEARCH	GEN	5	4	3	20	55	75
	Part IV	21UENS202	ENVIRONMENTAL STUDIES	AEC	2	2	2	-	50	50
III	Part I	23UTAM101/ 23UHIN101/	LANGUAGE – TAMIL/HINDI / FRENCH	LAN	4	3	3	25	75	100

		23UFRE101								
	Part II	23UENG101/ 23UAEN101	ENGLISH – GENERAL ENGLISH / ADVANCED ENGLISH	ENG	4	3	3	25	75	100
	Part III	23UCS3C04	CORE:OPERATING SYSTEMS ***(Skill Development)***	CC	4	4	3	20	55	75
		23UCS3C05/ 23UCA3C05/	CORE: JAVA PROGRAMMING ***(Employability)***	CC	4	4	3	20	55	75
		23UCS3CP3	CORE PRACTICAL: JAVA AND OPERATING SYSTEM ***(Employability)***	CC	4	2	3	20	55	75
		23UMA3A14	ALLIED: PROBABILITY AND STATISTICS	GEN	5	4	3	20	55	75
	Part IV	23UBTA301/ 23UATA301	BASIC TAMIL/ADVANCED TAMIL	AEC	2	2	2	25	25	50
		21UGEA303	GENERAL AWARENESS					--	50	
		23UCS3SB1	SKILL BASED : GNU IMAGE MANIPULATION PROGRAM ***(Employability,Skill Development)***	SEC	3	2	3	25	75	100
		21UNCCWS1	WOMEN STUDIES	AEC	2	-	2	-	50	50
IV	Part I	23UTAM101/ 23UHIN101/ 23UFRE101	LANGUAGE – TAMIL/HINDI / FRENCH	LAN	4	3	3	25	75	100
	Part II	23UENG101/ 23UAEN101	ENGLISH – GENERAL ENGLISH / ADVANCED ENGLISH	ENG	4	3	3	25	75	100
		23UCS4C06	CORE: MOBILE APPLICATION DEVELOPMENT ***(Employability)***	CC	4	4	3	20	55	75
		23UCS4C07	CORE: DATA ANALYTICS ***(Employability)***	CC	4	4	3	20	55	75
		23UCS4CP4	CORE PRACTICAL: MOBILE APPLICATION DEVELOPMENT ***(Employability)***	CC	4	2	3	20	55	75
		23UCC4A03	ALLIED IV: BUSINESS ACCOUNTING	GEN	5	4	3	20	55	75
	Part IV	22UBTA402/ 22UATA402/	BASIC TAMIL/ADVANCED TAMIL	AEC	2	2	2	25	25	50
		21UHUR404	HUMAN RIGHTS					--	50	
		23UCS4SB2	SKILL BASED :DATA ANALYTICS IN BIOINFORMATICS ***(Skill Development)***	SEC	3	2	3	25	75	100
V	Part III	23UCS3C08	CORE: COMPUTER NETWORKS ***(Skill Development)***	CC	5	5	3	20	55	75

		23UCS5C09 / 23UCA5C09	CORE:RELATIONAL DATABASE MANAGEMENT SYSTEM ***(Employability,Skill Development)***	CC	5	5	3	20	55	75
		23UCS5CP5/ 23UCA5CP5	CORE PRACTICAL: RELATIONAL DATABASE MANAGEMENT SYSTEM ***(Employability,Skill Development)***	CC	5	3	3	20	55	75
		23UCS5E01/ 23UCS5E02	ELECTIVE : INTRODUCTION TO ARTIFICIAL INTELLIGENCE / INTRODUCTION TO DATA MINING AND WAREHOUSING ***(Skill Development)***	DSE	5	4	3	25	75	100
		23NCS5E01	NME: SENSOR APPLICATIONS ***(Entrepreneurship,Skil l development)***	GE	4	4	3	25	75	100
	Part IV	23UCS5SB3	SKILL BASED : CASE TOOLS AND BIO PERL ***(Employability)***	SEC	3	2	3	25	75	100
		23UCSSB03	INTER DISCIPLINARY SKILL BASED:WEB DESIGNING USING HTML ***(Employability,Entrepreneurs hip , Skill Development)***	SEC	3	2	3	25	75	100
VI	Part III	23UCS6C10/ 23UCA6C10	CORE: SOFTWARE ENGINEERING ***(Entrepreneurship)***	CC	4	4	3	20	55	75
		23UCS6C11	CORE: VISUAL PROGRAMMING ***(Employability)***	CC	5	5	3	20	55	75
		23UCS6CP6	CORE PRACTICAL: VISUAL PROGRAMMING ***(Employability)***	CC	5	3	3	20	55	75
		23UCS6E01/ 23UCS6E02	ELECTIVE: BASICS OF ROBOTIC PROCESS AUTOMATION ***(Skill Development)*** / MATLAB PROGRAMMING ***(Employability)***	DSE	5	4	3	25	75	100
		23UCS6PVV	CORE : PROJECT	CC	5	4	3	25	75	100
	Part IV	23UCS6SB4	SKILL BASED - ROBOTIC PROCESS AUTOMATION LAB ***(Skill Development)***	SEC	3	2	3	25	75	100
		23UCSSB03	INTER DISCIPLINARY SKILL BASED:WEB DESIGNING USING HTML ***(Employability,Entrepreneurs hip , Skill Development)***	SEC	3	2	3	25	75	100
	Part V		CO-CURRICULAR ACTIVITIES (NSS, NCC, SPORTS, RSP, YRC,			1				50

			NECTAR, CHETNA WOMEN CELL ,AICUF)							
	TOTAL					**140**				**3800**
		19UCYS605	CYBER SECURITY ***(Skill Development)***		2	2	2	-	50	50
			SWAYAM /NPTEL/ MOOC			2				
	GRAND TOTAL		**TOTAL**		**180 +2 +2**	**140 +2 +2**				**3800 + 50**

IH – Instructional Hours , CP – Credit Points , CIA – Continuous Internal Assessment , ESE – End Semester Examination

PART- WISE TOTAL MARKS

PART	COURSE	MARKS	TOTAL MARKS	TOTAL CREDIT POINTS
Part I	Language - Tamil/ Hindi/ French	400	400	12
Part II	English – General /Advanced	400	400	12
Part III	Core- Theory, Practical and Project	1450	2100	65
	Allied – Theory	350		18
	Elective	300		12
Part IV	Basic Tamil/Advanced Tamil General Awareness/ Human Rights	100	850	4
	Skill Based (6 Courses)	600		12
	Value Education	50		2
	Environmental Studies	50		2
	Women Studies	50		-
Part V	Co-curricular Activities (NSS, NCC, SPORTS, RSP, YRC, NECTAR, CHETNA WOMEN CELL ,AICUF)	50	50	1
TOTAL			**3800**	**140**
	Cyber Security		50	2
	MOOC/SWAYAM / NPTEL		-	2
GRAND TOTAL			**3800+50**	**140+2+2**

SEMESTER : I

COURSE CODE : 23UCS1C01

TITLE OF THE COURSE : CORE :C AND DATA STRUCTURES

(Employability)

COURSE OBJECTIVES:

- To inculcate the domain knowledge of C Programming with real time examples.
- To emphasize the knowledge of data structures and its fundamental operations in different real-world applications.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Illustrate the basic concepts of C Programming.	**K1**
CO2	Discuss the logic of modular programming with derived data types and user defined functions	**K2**
CO3	Implement C programs for data storage using pointers and File concept.	**K3**
CO4	Apply different mechanisms to design algorithms in programming context.	**K1**
CO5	Apply accessing and arranging techniques in various real time applications	**K5**

SYLLABUS

Credits – 4 **Instructional Hours – 75**

UNIT I:INTRODUCTION TO PROGRAMMING CONCEPTS (K2) 15 Hours

Overview of C**:-** Basic Structure of C programs - Constants - Variables and Data Types: Character set - C Tokens - Keywords and Identifiers - Constants - Variables - Data types - Assigning values to variables - Operator and Expressions – Managing Input and Output Operations

Decision Making and Branching – Decision Making and Looping – Arrays –Declaring and Initializing String Variables - String handling functions.

UNIT II:DATA STORAGE CONCEPTS (K3) 15 Hours

User Defined Functions: definition of function - return values and their types - function calls - function declaration - category of function -recursion

Structures :Defining a structure - declaring structure variables - accessing structure members - structure initialization

UNIT III: ADVANCED CONCEPTS (K2) 15 Hours

Pointers: Understanding Pointers - accessing the address of a variable - declaring pointer variables - initialization of Pointer variable

File Management in C

(Self Study : Random access Files-Command Line Arguments)

UNIT IV :INTRODUCTION TO DATA STRUCTURES (K1) 15 Hours

Introduction to Data Structure: Classification of data structure. Abstract data types: The List ADT - Singly linked list.

Stack ADT: Implementation of Stack - array implementation of Stack. Queue ADT

:Array implementation of Queue - Queue operations.

UNIT V :ACCESSING AND ARRANGING (K3) 15 Hours

Sorting and Searching: Bubble sort - Heap Sort - Insertion sort - Merge sort(only procedure).

Search Techniques: Linear search - Binary search.

(Beyond the Curriculum: Separate Chaining, Open Addressing- Rehashing, Extendible Hashing)

TEXT BOOKS:

1. "Programming in ANSI C" by E.Balagurusamy, Tata McGraw Hill , 8th edition (2019) , ISBN: 9789353165130, 9789353165130.
2. "Data Structures & Algorithms Using C" by Dr - M.Rajaram , Dr. P. Uma Maheswari, UmayamPublications , Second Edition ISBN :81 - 90304151 – 1.
3. Vijayalakshmi Pai. G.A. (2016) Data Structures and Algorithms-Concepts, Techniques and Applications (1st Edition) Mc Graw Hill Education India Pvt. Ltd.

REFERENCE BOOKS:

1. Yashavant P. Kanetkar (2015) Let Us C. (13th Edition) BPB Publications , India
2. Brain W. Kernighan, Dennis M Ritche (2015). The C Programming Language.Prentice Hall Software Series Publications , Canada.
3. Ellis Horowitz, Sahni Sartaj, Dinesh Mehta (2007) Fundamentals of Data Structures in C++ (2nd Edition). Orient BlackSwan.

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Searching and Sorting	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-0001-introduction-to-computer-science-and-programming-in-python-fall-2016/lecture-videos/lecture-12-searching-and-sorting/
V	Bubble Sort	https://www.youtube.com/watch?v=N35fv1YA_24
V	Heap Sort	https://www.youtube.com/watch?v=B7hVxCmfPtM
V	Insertion sort	https://www.coursera.org/lecture/algorithms-part1/insertion-sort-1hYlN
V	Merge Sort	https://www.coursera.org/lecture/algorithms-part1/mergesort-ARWDq
V	Linear search	https://youtu.be/C46QfTjVCNU
V	Binary search.	https://youtu.be/V_T5NuccwRA

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	1	2	1	2	2	2	3	3	2	2
CO2	3	3	1	3	2	3	3	3	3	2	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	2	2	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Model	Once in a Semester
5	Assignment(Unit I & II)	Twice in a Semester
6	Seminar (Unit III & IV)	Twice in a Semester
7	Online Quiz (Unit V)	Once in a Semester

Course designed by : Ms. R.Usha Devi	**Verified by HOD : Ms. R.UmaMaheswari**
Checked by CDC : Ms.A.Jansi Rani	**Approved by :** **Principal**

Dr.R.Kavitha Dr.N.A.Sheela Selvakumari Dr.R.Vijayabanu Ms.R.Janane Priya Mrs.S.Esther Darthi

SEMESTER : I

COURSE CODE : 23UCS1CP1

TITLE OF THE COURSE : CORE PRACTICAL: C AND DATA STRUCTURES

(Employability)

COURSE OBJECTIVES:

- To inculcate the domain knowledge of C Programming with real time examples.
- To emphasize the knowledge of data structures and its fundamental operations in different real-world applications.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Use the fundamentals of C Programming for Problem Solving	**K3**
CO2	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	**K3**
CO3	Record: Implement the Program and print the Results	**K3**

Credits – 4 **Instructional Hours - 75**

LIST OF PRACTICALS

1. Write a program to perform arithmetic operations using different data types.
2. Write a program to find the greatest of 3 numbers using decision making statement.
3. Write a program to find the factorial of a given number using loop statement.
4. Write a program to perform string operation using string functions.
5. Write a program to perform matrix addition using two dimensional arrays.

6. Write a program to print the students mark sheet with register number, name and marks in five subjects using structure.
7. Write a program for Sorting the elements of an array.
8. Write a program to implement a Stack .
9. Write a program to implement a Queue.
10. Write a program to perform File Operations**.**

MAPPING OF CO'S WITH POs AND PSOs

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	3	3	3	3	3	2	2	3	3	3	-	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

(Correlation: 3-High , 2-Medium , 1-Low)

ASSESSMENT TOOLS

S.No	**Assessment Methods**	**Frequency of Assessment**
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

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Checked by CDC : Ms.A.Jansi Rani	**Approved by :** **Principal**

Dr.R.Kavitha Dr.N.A.Sheela Selvakumari Dr.R.Vijayabanu Ms.R.Janane Priya Mrs.S.Esther Darthi

Dr.R.Kavitha Dr.N.A.Sheela Selvakumari Dr.R.Vijayabanu Ms.R.Janane Priya Mrs.S.Esther Darthi

SEMESTER: II

COURSE CODE: 23UCS2C02

TITLE OF THE COURSE: CORE : COMPUTER ORGANIZATION AND ARCHITECTURE

(Skill Development)

COURSE OBJECTIVES:

- To provide a strong foundation in understanding the concept of digital number system and circuits.
- To have a deep knowledge on memory and I/O organization.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO 1	Illustrate the conversion among various number systems and perform simplifications using Boolean algebra.	**K2**
CO 2	Infer digital operations using Registers.	**K2**
CO 3	Outline the instructions codes and machine language.	**K2**
CO 4	Discuss about the process of central processing units.	**K2**
CO 5	Distinguish the various memory organization for I/O operations.	**K2**

SYLLABUS

Credits- 4 **Instructional Hours- 60**

UNIT-I: DIGITAL LOGIC CIRCUITS AND COMPONENTS (K2) 12 hours

Digital computers - Logic Gates-Boolean Algebra - Map Simplification - SR Flip-Flop - D Flip-Flop -JK Flip-Flop -T Flip-Flop – Multiplexers – Registers - Memory Unit.

(Self study: Logic Gates)

UNIT-II: DATA REPRESENTATION AND REGISTER(K2) 12 hours

Data Types – Complements - Fixed-Point Representation - Floating-Point Representation -Gray code - Bus and Memory Transfer - Arithmetic Microoperations -

Shift Microoperations.

(Beyond the curriculum: Excess-3 code, Alphanumeric Codes, Weighted Codes)

UNIT-III: BASIC COMPUTER ORAGANIZATION AND PROGRAMMING IN BASIC COMPUTER (K2) 12 hours

Instruction Codes – Computer Register – Computer Instructions – Timing and Control – Instructional Cycle – Machine Language – Assembly Language – Assembler .

UNIT- IV: CENTRAL PROCESSING UNIT (K2) 12 hours

General Register Organization – Stack Organization – Instruction Format – Data Transfer and Manipulation – Data Transfer Instructions – Data Manipulation Instructions – Program Control – Conditional Branch Instructions.

UNIT-V:I/O ORGANIZATION AND MEMORY ORGANIZATION (K2) 12 hours

Peripheral Devices - Input/Output Interface – Asynchronous Data Transfer - Strobe Control and Handshaking – Mode of Transfer – Priority Interrupt – Direct Memory Access. Memory Hierarchy – Main Memory – Associative Memory - Cache Memory - Virtual Memory.

TEXT BOOK

1.Morris Mano M.(2012). Computer System Architecture (3rd Edition). Pearson Education Publication , India.ISBN :978 – 9332585607.

REFERENCE BOOKS

1. Morris Mano M (2006), Digital Design (4th Edition), Prentice Hall of India.
2. Ata Elahi (2017), Computer Systems,Digital Design, Fundamentals of Computer Architecture and Assembly Language , Springer.
1. NikrouzFaroughi(2014), Digital Logic Design and Computer Organization with Computer Architecture for Security, McGraw Hill Education , Canada

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Peripheral Devices	https://www.youtube.com/watch?v=mimv_XJnLTs
V	Input/Output Interface	https://www.youtube.com/watch?v=b9frb09L2kU
V	Asynchronous Data Transfer	https://www.youtube.com/watch?v=t2GvlKhT9tY
V	Mode of Transfer	https://www.youtube.com/watch?v=-y1KxDbjU_Y
V	Priority Interrupt	https://www.youtube.com/watch?v=Y3rT6tkM8kc
V	Direct Memory Access	https://www.youtube.com/watch?v=VCIacgTWVho
V	Memory Hierarchy	https://www.youtube.com/watch?v=YVObWiciVgw
V	Main Memory	https://www.youtube.com/watch?v=bkJx-URsnyc
V	Associative Memory	https://www.youtube.com/watch?v=zLDZCHrvjs4
V	Cache Memory	https://www.youtube.com/watch?v=U2iE3MwFYmA
V	Virtual Memory	https://www.youtube.com/watch?v=ujoJ7J_l9cY

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	2	-	-	3	3	3	3	3	3	2
CO2	3	3	2	3	2	-	2	2	-	3	3	3	3	2

CO3	3	3	-	3	2	3	3	3	3	3	-	2	-	2
CO4	3	3	3	-	2	-	-	2	3	3	3	2	2	-
CO5	3	2	3	-	2	3	2	2	-	3	3	3	3	-

(Correlation: 3-High , 2-Medium , 1-Low)

ASSESSMENT TOOLS

S.NO	**Assessment Methods**	**Frequency Of Assessment**
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Group Discussion(Unit V)	Once in a semester

Course designed by : Ms. S.Maria Sylviaa	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Ms.A.Jansi Rani	**Approved by :** **Principal**

R.Kavitha Dr.N.A.Sheela Selvakumari Dr.R.Vijayabanu Ms.R.Janane Priya Mrs.S.Esther Darthi

SEMESTER: II

COURSE CODE: 23UCS2C03 / 23UCA2C03 / 23UIT2C03

TITLE OF THE COURSE:CORE : PYTHON PROGRAMMING

(Employability)

COURSE OBJECTIVES :

- To inculcate a greater understanding of programming language design and implementation.
- To comprehend the paradigm of object-oriented concepts with PYTHON Programming.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Discuss the fundamentals of programming with PYTHON.	**K2**
CO2	Illustrate problem solving techniques with Control Structures, Lists and functions	**K2**
CO3	Implement programs for real time problems using Modular Designs and OOPs	**K3**
CO4	Demonstrate the fundamentals of the text files ,dictionary and sets	**K3**
CO5	Implement programs for GUIs and Graphics using Turtle and Tkinter	**K3**

SYLLABUS

Credits –3 **Instructional hours - 45**

UNITI: PROGRAMMING CONCEPTS (K2) **9 hours**

The Python Programming Language: Python - The IDLE Python Development Environment - The Python Standard Library- Python IDLE-Data and Expressions: Literals- Numeric Literals - String Literals - Control Characters - String Formatting Implicit and Explicit Line Joining -Variables and Identifiers: Variable- Variable Assignment and Keyboard Input- Identifier- Keywords and Other Predefined Identifiers in Python Operators – Operator - Arithmetic Operators - Expressions and Data Types: Expression-Operator Precedence - Operator Associativity -Data Type - Mixed-Type Expressions.

UNIT II: CONTROL STRUCTURES AND FUNCTIONS (K2) **9 hours**

Control Structure - Iterative Control - While Statement - Input Error Checking -Infinite loops - Boolean Flags and Indefinite Loops - Lists: List Structures- Lists (Sequences) in Python: Python List Type – Tuples -Sequences -Nested Lists- Functions: Program Routines - Defining Functions – Functions - Calling Value-Returning Functions - Calling Non-Value-Returning Functions - Parameter Passing - Keyword Arguments in Python - Default Arguments in Python - Variable Scope

(Self Study: Boolean Expressions – Selection Control)

UNIT III : MODULAR DESIGN (K3) 9 hours

Modules - Module Specification - Python Modules- Modules and Namespaces- Importing Modules- Object-Oriented Programming: Class - Features of Object-Oriented Programming – Encapsulation- Defining Classes in Python - Inheritance Subtypes - Subclasses in Python - Polymorphism – Recursion: Recursive Functions.

(Beyond the Curriculum: Django web framework in python :The Local Library website-creating a skeleton website using models)

UNIT IV : TEXT FILES AND DICTIONARY & SETS (K3) 9 hours

Text Files: Text File - Text Files Uses- Opening Text Files - Reading Text Files - Writing Text Files - String Processing - String Traversal - Sequence Operations - String Methods - Exception Handling - The Propagation of Raised Exceptions - Catching and Handling Exceptions – Exception Handling and User Input - Exception Handling and File Processing - Dictionaries and Sets: Dictionary Type in Python- Dictionary- Set Data Type in Python Modular Design

UNIT V: TURTLE AND TKINTER (K3) 9 hours

Objects and Their Use: Software Objects - Object - Object References - Turtle Graphics - Creating a Turtle Graphics Window - The “Default” Turtle -Fundamental Turtle Attributes and Behavior - Additional Turtle Attributes - Creating Multiple Turtles - GUI Programming :Tkinter – Introduction – Tkinter and Python Programming – GUIs-Related Modules and GUIs.

TEXT BOOKS

1. Charles Dierbach,(2016), Introduction To Computer Science Using Python – Computational Problem-Solving Focus,Reprint , Wiley Publication,India.
2. Wesley J Chun, Sunnyvale, California (2012),Core Python Applications Programming (3rd Edition), Pearson Publications, United Kingdom.

REFERENCE BOOKS

1. Reema Thareja (2019), Python Programming Using Problem Solving Approach (1st Edition), Oxford University, London.
2. Kenneth A. Lambert (2014), Martin Osborne, Fundamentals of Python (1st Edition), Cengage Publication,United Kingdom.
3. Rob Miles(2017), Begin to Code with Python(1st Edition), Pearson Education, United Kingdom.

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Software Objects	https://www.youtube.com/watch?v=_uYorV9ebLg
V	Object and Object References	https://www.youtube.com/watch?v=zedS1tR5OCU
V	Turtle Graphics	https://www.youtube.com/watch?v=ptEVisUCniw
V	Turtle Graphics Window	https://www.coursera.org/lecture/python-basics/our-first-turtle-program-TOxha
V	Turtle Attributes and Behavior	https://cleverprogrammer.teachable.com/courses/learn-python/lectures/1539085
V	Multiple Turtle	https://www.coursera.org/lecture/python-basics/instances-a-herd-of-turtles-hUkpB
V	Tkinter and Python Programming and GUIs	https://www.youtube.com/watch?v=D8-snVfekto

MAPPING OF CO'S WITH POs AND PEOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	-	-	-	-	-	-	2	-	-	3	-
CO2	3	3	2	-	2	-	-	-	-	-	2	-	3	-
CO3	3	3	-	2	-	2	2	-	-	-	2	3	3	2
CO4	3	3	2	2	-	-	-	2	1	-	3	3	3	3

CO5	3	3	3	3	2	-	2	-	-	2	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS:

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Group Discussion (Unit V)	Once in a Semester

Course designed by : Ms. C.Clement Sherlin	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Ms.A.Jansi Rani	**Approved by :** **Principal**

SEMESTER: II

COURSE CODE: 23UCS2CP2

TITLE OF THE COURSE : CORE PRACTICAL - PYTHON AND BIO INFORMATICS PROGRAMMING*(Employability)*

COURSE OBJECTIVES:

- To gain programming skills in python**.**
- To inculcate knowledge about the Object Oriented concepts and file operations.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Apply math functions, control statements and demonstrate the use of stack overflow, Inheritance and recursive functions	**K3**

CO2	Implement the loop methodology, update elements using key values and apply the concepts for Graphical User Interface using Turtle and Tkinter	**K3**
CO3	**Record :** Implement programs and present result	**K3**

Credits-3 **Instructional Hours - 45**

LIST OF PROGRAMS

PYTHON

1) Implement Python program to calculate GCD of two numbers.
2) Write a program that accepts a list from user and reverse the content of list and display it without using built-in function.
3) Write a Python program to find the index of an item of a tuple.
4) Write a Python function that checks whether a passed string is palindrome or not.

BIOINFORMATICS

1) Write a program to create a dictionary from two lists without losing duplicate values.
2) Write a program to print the nucleotide name from single letter code.
3) Write a program to find the molecular weight of a DNA sequence.
4) Write a program to find the distance between points using class.

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	2	2	1	3	2	-	2	1	2	3	1
CO2	3	3	2	1	2	3	3	2	2	1	2	-	3	-
CO3	3	3	-	2	-	2	2	-	1	2	2	3	3	2

(Correlation: 1-Low, 2-Medium, 3-High)

ASSESSMENT TOOLS:

S.No	Assessment Methods	Frequency of Assessment

1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

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Checked by CDC : Ms.A.Jansi Rani	**Approved by :** **Principal**

SEMESTER: III

COURSE CODE: 23UCS3C04

TITLE OF THE COURSE : CORE IV: OPERATING SYSTEMS

(Skill Development)

COURSE OBJECTIVES:

- To understand the fundamentals of Operating Systems.
- To know the components and management aspects of processor, deadlock and memory.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Describe the necessary components in operating systems with examples	**K1**
CO2	Illustrate the process management strategies.	**K2**
CO3	Express the various deadlocks algorithms.	**K2**
CO4	Discuss the mechanisms involved in memory management.	**K2**
CO5	Discuss secondary storage memory management.	**K2**

SYLLABUS

Credits-4 **Instructional hours – 60**

UNIT-I: Introduction to Operating System (K1) 12 hours

History - Operating System Environments - Operating System Components and Goals - Operating System Architectures - Hardware Components - Software Overview.

UNIT-II:Process Management (K2) 12 hours

Process - Process States - Process Management – Interrupts - Interprocess Communication –Thread - Thread Operations - Threading Models - Scheduling Levels - Preemptive Vs Non -Preemptive Scheduling – Priorities - Scheduling Algorithms.

(***Self Study: Thread Operations, Threading Models***)

UNIT-III: Deadlock (K2) 12 hours

Deadlock - Indefinite Postponement - Necessary Conditions For Deadlock - Deadlock Solutions - Deadlock Prevention - Deadlock Avoidance with Dijikstra's Bankers Algorithm -Deadlock Detection - Deadlock Recovery.

UNIT-IV: Memory Management (K2) 12 hours

Memory Management Strategies - Contiguous Vs Non-Contiguous Memory Allocation - Single User Contiguous Memory Allocation - Fixed Partition Multiprogramming – Variable Partition Multiprogramming - Demand Paging - Page Replacement - Page Replacement Strategies.

(Beyond The Curriculum: Best Cloud operating System, Disk Operating System, IoT Operating System, KaiOS)

UNIT-V: Secondary Storage Management (K2) 12 hours

Necessity of Disk Scheduling - Disk Scheduling Strategies - Files - File Organization - File Allocation - Free space Management - File Servers and Distributed Systems.

TEXT BOOK:

1. Harvey M. Deitel , *Operating Systems* (3rd Edition). Pearson Education Publication. (2003)

REFERENCE BOOKS:

1. Achyut S Godbole ,*Operating Systems*(2nd Edition). Tata Mc- Graw Hill Publications. (2002)
2. DhamdhereD.M ,*System Programming and Operating System* (2nd Edition) Tata McGraw Hill Publications. .(1999)
3. Pradeep.K.Sinha ,*Distributed Operating System and Compiler Design* (2nd Edition) Prentice Hall of India Pvt.Ltd. (1998)

BLENDED LEARNING

MAPPING OF CO's WITH Pos AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	1	2	2	1	2	1	3	3	3
CO2	3	3	2	2	2	3	3	2	1	2	3	3	3	3
CO3	3	3	2	2	2	3	3	2	1	2	3	3	3	3
CO4	3	2	2	1	1	2	1	2	1	2	2	3	3	3
CO5	3	2	2	1	1	2	2	2	1	3	3	3	2	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

UNIT	TOPICS	LINKS
V	Necessity of Disk Scheduling	https://www.youtube.com/watch?v=vvJbznPCajI
V	Disk Scheduling Strategies	https://www.youtube.com/watch?v=Qow06ontwuc
V	Files, File Organization, File Allocation	https://www.youtube.com/watch?v=EbHMDZTVrJg
V	Free Space Management	https://www.youtube.com/watch?v=hDBFSQRHPAU
V	File Servers and Distributed Systems	https://www.techtarget.com/searchnetworking/definition/file-server https://www.youtube.com/watch?v=1r42s6oQdfY

S.No	Assessment Methods	Frequency of Assessment
1.	End Semester Examination	Once in a Semester
2.	CIA I	Once in a Semester
3.	CIA II	Once in a Semester
4.	Model	Once in a Semester
5.	Assignment (Unit I & II)	Twice in a Semester

6.	Seminar (Unit III (& IV)	Twice in a Semester
7.	Group Discussion (Unit V)	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER: III

COURSE CODE: 23UCS3C05 / 23UCA3C05

TITLE OF THE COURSE:CORE V - JAVA PROGRAMMING

(Employability)

COURSE OBJECTIVES:

- To impart the fundamental concepts of JAVA.
- To gain knowledge of standalone and web applications
- To understand the concepts needed for database connectivity.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Discuss the fundamentals of Java with illustration.	**K2**
CO2	Implement program using Inheritance and Packages concept.	**K3**
CO3	Summarize Exception handling and concurrent programming.	**K2**
CO4	Implement GUI programs for user-friendly environment.	**K3**
CO5	Illustrate File and back end connectivity.	**K2**

SYLLABUS

Credits -4 **Instructional hours-60**

UNIT-I: INTRODUCTION (K2) **12 hours**

Java Features – Byte Code – Lexical issues - Class Fundamentals – Objects – Overloading Methods – Passing and Returning Objects – Recursion – Controlling Access to Members – this Keyword - static and final Keyword.

(Self Study: Recursion)

UNIT-II: INHERITANCE AND PACKAGES (K3) **12 hours**

Nested Classes – Inheritance – super Keyword – Multilevel Hierarchy – Method Overriding - Dynamic Method Dispatch – Object Class – Abstract Classes - Packages – Access Modifiers – Importing Packages – Interfaces – Applying Interfaces.

UNIT-III: EXCEPTION HANDLING AND THREADS (K2) **12 hours**

Exception Handling – Using Try Catch – Nested Try- Throw – Throws – Finally – Built In Exceptions – User Defined Exceptions - Threads – Thread Model – Creating Thread – Thread Priorities – Synchronization – Multithreading – Suspending - Resuming - Stopping Threads.

UNIT-IV: GUI PROGRAMMING WITH SWING (K3) **12 hours**

Introduction to Swing: Swing Features – MVC Connection – Components and Containers – Swing Packages – Swing Application. Exploring Swing – Swing Menus: Menu Basics – JmenuBar – Jmenu – JmenuItem – Main Menu – Adding Images and Tooltips to Menu Items – Popup Menu – Toolbar.

(Beyond the Curriculum: JSP architecture, Life cycle of JSP, JSP tags and expressions)

UNIT-V : FILES AND DATABASES (K2) **12 hours**

Streams - Stream Classes - Byte Stream Classes - Character Stream Classes - Using

Streams - I/O Classes - File Class - I/O Exceptions - Creation of Files - Reading/Writing Characters and Bytes - Primitive Data Types - Random Access File - JDBC Basics - Components of JDBC- Executing DLL and DML Commands.

TEXT BOOKS

1. Herbert Schildt, *JAVA - The Complete Reference* (9th Edition), Mc Graw Hill Publications, United Kingdom. (2014)
2. Balagurusamy E, *Programming with JAVA* (5th Edition), Mc Graw Hill Education, India. (2014)
3. Rashmi Kanta Das, *Core Java for Beginners* (3rd Edition), First Reprint, Vikas Publishing House Pvt Ltd, India. (2015)

REFERENCE BOOKS

1. Paul Deitel, Harvey Deitel, *Java How to Program* (9th edition),Pearson Publications, United Kingdom. (2015)
2. Samanta D, *Object Oriented Programming with C++ and JAVA* (2nd edition), Prentice- Hall of India Private Limited, India. (2005)
3. Bruce Eckel, Chuck Allison, *Thinking in Java* (3rd Edition), Prentice-Hall of India Private Limited, India. (2002)

BLENDED LEARNING:

UNIT	TOPICS	LINKS
V	Streams, Stream Classes,Byte Stream Classes, Character Stream Classes,Using Streams, I/O Classes,File Class.	https://www.youtube.com/watch?v=SjMibFjAjr0 https://www.youtube.com/watch?v=E5y1AF5WJP0 https://www.youtube.com/watch?v=NvRswBF-Yiw

V	I/O Exceptions	https://youtu.be/6LIoSR5N3t0
V	Creation of Files , Reading/Writing Characters and Bytes	https://www.youtube.com/watch?v=mkqbbkBqOaU
V	Primitive Data Types,	https://youtu.be/Rilk5TayNbI
V	Random Access File,	https://www.youtube.com/watch?v=XW0N07JbiCk
V	JDBC Basics - Components of JDBC,	https://www.youtube.com/watch?v=kLz2h0vA1MI
V	Executing DLL and DML Commands.	https://www.linkedin.com/learning/oracle-database-12c-basic-sql/introduction-to-dml-and-ddl-commands

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	3	-	2	-	2	-	2	2	3
CO2	3	3	3	2	2	3	2	3	-	2	-	2	2	3
CO3	3	3	3	2	2	3	-	3	-	2	-	3	2	3
CO4	3	3	3	2	2	3	2	3	-	3	3	3	3	3
CO5	3	3	3	2	2	3	-	3	-	2	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Model	Once in a Semester
5	Assignment (Unit I &II)	Twice in a Semester
6	Seminar(Unit III & IV)	Twice in a Semester

7	Quiz (Unit V)	Once in a Semester

Course designed by : Ms. P.Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER :III

COURSE CODE : 23UCS3CP3

TITLE OF THE COURSE : CORE PRACTICAL III – JAVA AND OPERATING SYSTEMS

(Employability)

COURSE OBJECTIVES:

- To inculcate knowledge on Java Programming
- To inculcate knowledge on Linux Operating systems.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Apply the basic concepts of Java and OOP.	**K3**
CO2	Apply the commands in operating system	**K3**
CO3	Record: Implement Program and present result	**K3**

Credits- 2 **Instructional hours - 60**

LIST OF PRACTICALS

JAVA

1. Write a program to print the following triangle of
   numbers
   1
   12
   123
   1234
   12345
2. Write a program for sorting the given numbers in ascending and descending order using arrays.
3. Write a program to calculate electricity bill using inheritance.
4. Write a program to find area of triangle and rectangle using package.
5. Write a program to handle the divide by zero exception.
6. Create an applet to draw several shapes. (Rectangle, Oval, Square, Circle)
7. Write a program to create a table with a following structure : product name, product id,

price, sales and total. Insert values to the table and view the table using JDBC.

OPERATING SYSTEMS

1. Write a Linux Program using basic Shell Commands
2. Write a Linux Program using Directory Manipulation commands
3. Write a Linux Program using File Command

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	3	-	2	-	2	-	2	2	3
CO2	3	3	3	2	2	3	2	3	-	2	-	2	2	3
CO3	3	3	3	2	2	3	-	3	-	2	-	3	2	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

Course designed by : Ms. P. Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER: III

COURSE CODE:23UCS3SB1

TITLE OF THE COURSE:SKILL BASED I - GNU IMAGE MANIPULATION PROGRAM

(Employability & Skill Development)

COURSE OBJECTIVES:

- To develop the basic designing skill in GIMP
- To develop Graphics designing and Editing

COURSE OUTCOMES:

At the end of the course, student will be able to:

C01	Transform a image with opensource applications	K2
C02	Develop program using PERL script	K3
C03	Record: Implement Program and present result	K3

Credits: 2 **Instructional hours: 45**

LIST OF PRACTICALS

1. Create a floating logo using GIMP.
2. Design a Banner using GIMP.
3. Perform an operation using Layer Masks in GIMP
4. Perform Photo Editing using Various tools in GIMP
5. Perform Photo Manipulation for a Existing Photo in GIMP
6. Perform Graphic Designs using GIMP
7. Perform various Paintings using GIMP.
8. Create a Program using Basic GIMP PERL scripts

MAPPING OF CO'S WITH POs AND PSOs

(Correlation: 3-High , 2-Medium , 1- Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	2	2	2	-	-	2	3	2	-	-
CO2	3	3	3	-	-	-	2	2	3	-	2	3	3	2
CO3	3	3	3	2	-	-	-	2	3	-	2	3	3	2

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

Course designed by : Ms. R.Usha Devi	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER : IV

COURSE CODE : 23UCS4C06

TITLE OF THE COURSE :CORE IV: MOBILE APPLICATION DEVELOPMENT

(Employability)

COURSE OBJECTIVES:

- To understand the User Interface Design, Backend databases, other services for mobile applications.
- To get a job using mobile application development skills
- To get exposure to Android and IOS development environment

COURSE OUTCOMES

At the end of the course, the student will be able to:

C01	Understand the Basic Concepts of Mobile Computing	K2
C02	Understand the different Mobile Internet Protocols	K2
C03	Get familiar with Mobile Network Technology	K3
C04	Design and develop Mobile application using Multimedia and its applications	K6
C05	To Know about various Security issues in Mobile Computing	K4

SYLLABUS

Credits:4 **Instructional Hours:60**

Unit:I Basics of Communication Technologies and Mobile Computing (K2) 12 Hours

Mobile Handsets-Wireless Communication-Cell Phone system-Types of Telecommunication Network-Computer Networks-LAN Architectures-Components of a Wireless Communication system-Architecture-Standards-Mobile Computing Vs Wireless Networking-Characteristics of Mobile Computing-Structure-GSM-GPRS

Unit:II MAC Protocols and Mobile Internet Protocol (K2) 12 Hours

A Taxonomy of MAC Protocols-Fixed Assignments Schemes-Random Assignment Schemes-Reservation Based Schemes-Mobile IP-Packet Delivery-Overview of Mobile IP-Key Mechanism used in Mobile IP-DHCP

Unit:III Mobile Transport Layer (K3) 12 Hours

Overview of TCP/IP-Terminologies of TCP/IP-Architecture-Application Layer Protocols of TCP-TCP/IP vs ISO/OSI Model-Mobile Databases-Transaction Processing Environment-Data

Dissemination-Mobile Transaction Models-Query Processing.

(Self Study:MobileAdhoc Networks-MANET vs VANET)

Unit:IV Multimedia and IP Multimedia Systems (K6) 12 Hours

Introduction to Multimedia-Compression and Decompression-Coder and Decoder (CODEC)-Multimedia Delivery over the Internet -IMS and its evolution-Benefits from IMS-Architecture-Protocols-Building Blocks

(Beyond the Curriculum :IP Multimedia Subsystems-Protocols in IMS-Policy Management in IMS)

Unit:V Security Issues in Mobile Computing (K4) 12 Hours

Introduction-Information Security-Security Techniques and Algorithms-Security Protocols-Security Models-Security Frameworks-Narrowband to Broadband-All IP and B3G Network-OFDM-FAMA/DAMA-MPLS

TEXT BOOKS:

1.Prasant Kumar Pattnaikand RajibMall, "*Fundamentals of Mobile Computing*",(2nd edition),PHI Learning Private Limited,(2019)

2.Ashok K Talukder and Roopa R Yavagal, "*Mobile Computing*", Tata McGraw Hill, (2005).

3. Christopher Cox, "*An introduction to LTE – LTE, LTE-Advanced, SAE and 4G Mobile Communications*", John Wiley & Sons, (2012)

REFERENCE BOOKS:

1. Reto Meier, "*Professional Android 2 Application Development*", Wrox Wiley, (2010).

2. Alasdair Allan, "*iPhone Programming*", O'Reilly, (2010).

3. AfifOsseiran, Jose F. Monserrat, PathickMarsch, *5G Mobile Wireless Communication*, Cambridge University Press, 2016 Reference Books 1 Pradeep Kothari, "Android Application Development" Dream tech Press, (2015)

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Information Security	https://onlinecourses.swayam2.ac.in/nou19_cs08/preview
V	Security Techniques and Algorithms	https://intellipaat.com/blog/tutorial/ethical-hacking-cyber-security-tutorial/encryption-techniques/
V	Security Protocols and Security Models	https://www.youtube.com/watch?v=uZOqxt6frbg
V	OFDM	https://youtu.be/pUzurHbPpqQ
V	MPLS	https://youtu.be/MmAps1Ok3w0

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	2	2	3	3	3	2	1	3	1	2
CO2	3	1	2	-	2	2	2	2	1	3	2	2	2	2
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	2	2	2	2	2	2	3	3	3	3	2	3
CO5	3	3	3	2	3	3	3	3	3	3	3	3	3	3

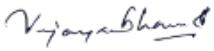
(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment(Unit I , Unit II)	Twice in a semester
6	Seminar(Unit III, Unit IV)	Twice in a semester
7	Model Presentation(Unit V)	Once in a Semester

Course designed by : Ms. R. Usha Devi	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :**

	Principal

				
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER : IV

COURSE CODE : 23UCS4C07

TITLE OF THE COURSE: CORE VII: DATA ANALYTICS

(Employability)

COURSE OBJECTIVES:

- To understand the usage of R Environment, R Packages and Programming concepts of R to perform data analysis effectively.
- To enable the use of data management skills to do statistical analysis and graphics with R using various methodology.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Describe the R Programming environment fundamentals and packages	**K1**
CO2	Identify R programming basics in terms of Functions, control statements and Data structure programming	**K1**
CO3	Interpret data management efficiently for processing	**K2**
CO4	Select graphics creation to analyze data using various statistical considerations	**K2**
CO5	Translate the methods to model for real time problems	**K2**

SYLLABUS

Credits – 4 **Instructional Hours -60**

UNIT-I INTRODUCTION TO R: (K1) 12 Hours

Getting R - Downloading, Installing-The R Environment-Command Line interface-RStudio-Revolution Analytics RPE-R Packages Installing-Loading-Building Packages-Basics of R-Basic Math-Variables-Data Types-Calling Functions-Missing Data.

UNIT-II PROGRAMMING BASICS: (K1) 12 Hours

Writing R Functions-Function arguments-Return values-Call-Control Statements-if and else-switch-compound tests- Loops-for Loops-while Loops-Controlling Loops-Group Manipulation-Data Reshaping-Manipulating Strings-Data Structures-Vectors-Matrices-Arrays-Data Frames- Factors-Lists.

UNITIII DATA MANAGEMENT: (K2) 12 Hours

Data Input-Importing data from keyboard, delimited text file, Excel, XML, Webscrapping, SPSS, SAS-Reading Data into R-Reading CSV-Reading from Databases-R Binary files-Annotating datasets-Specific Functions with data objects-Creating new variables-recoding variables-renaming variables-Missing values-Date values-Type conversions-Sorting Data-Merging Datasets-Using SQL to manipulate data frames.

UNIT-IV STATISTICS AND GRAPHICS: (K2) 12 Hours

Descriptive Statistics-Frequency and Contingency tables-Correlations and Covariances-T tests-Working with graphs- Graphical Parameters- Adding text-Customized axes-Legends-Statistical Graphics-Base Graphics-ggplot2- Linear Models-Simple Linear Regression-Logistic Regression-Multiple Regression-Poisson Regression -Model Diagnostics-Residuals- CrossValidation-Bootstrap-Nonlinear Models-Decision Trees-Random Forests

(Self Study:Graphical Parameters)

UNIT-V ADVANCED METHODS (K2) 12 Hours

Generalized Linear Models and glm() function-Logistic Regression-Poisson Regression-Principle component and Factor Analysis-Advanced methods for missing data-Steps in dealing with missing data-Exploring missing value patterns-Rational Approach for dealing missing data.

(*Beyond the Curriculum:Comparing Models*)

TEXT BOOKS:

1. Jared P Lander, "*R for Everyone Advanced Analytics and Graphics*",Sixth Impression, Pearson Education Inc.(2017)
2. Robert I Kabacoff, "*R IN ACTION: Data analysis and graphics with R,*" Manning Publications Co, (2011).

REFERENCE BOOKS:

1. Joseph Adler, "*R in a Nutshell*", Second Edition, O'Reilly Media Inc., (2012)

2. Sasha Hafner," *An Introduction to R for Beginners*" ResearchGate, August (2019)
3. Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, "*An Introduction to Statistical Learning with Applications in R*"(2ND, August (2021)

BLENDED LEARNING

UNIT	TOPIC	LINKS
V	Generalized Linear Models and glm() function	https://www.youtube.com/watch?v=IEa4v2vLbJg
V	Logistic Regression	https://www.youtube.com/watch?v=C4N3_XJJ-jU
V	Poisson Regression	https://stats.oarc.ucla.edu/r/dae/poisson-regression/
V	Principle component and Factor Analysis	https://towardsdatascience.com/what-is-the-difference-between-pca-and-factor-analysis-5362ef6fa6f9
V	Advanced methods for missing data	https://towardsdatascience.com/handling-missing-data-like-a-pro-part-2-imputation-methods-eabbf10b9ce4
V	Rational Approach for dealing missing data	https://www.youtube.com/watch?v=An7nPLJ0fsg

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	3	2	2	2	2	2	1	1	2	1	1
CO2	3	3	3	3	3	3	3	2	1	2	2	3	2	3
CO3	2	3	3	3	3	3	3	3	2	3	2	3	2	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS:

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment (Unit I & II)	Twice in a semester
6	Seminar (Unit III & IV)	Twice in a semester
8	Group Discussion (Unit V)	Once in a Semester

Course designed by : Ms. P. Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER : IV

COURSE CODE : 23UCS4CP4

TITLE OF THE COURSE: CORE PRACTICAL IV: MOBILE APPLICATION DEVELOPMENT LAB *(Employability)*

COURSE OBJECTIVES:

- To install and Configure the Android development tools.
- To have a deep knowledge in designing and developing the Android applications.

COURSE OUTCOMES:

At the end of the course, student will be able to

C01	Install and configure Android application development tools.	**K3**
C02	Design and develop user Interfaces for the Android platform.	**K3**
C03	Record:Implement the program and print the Results	**K3**

LIST OF PRACTICALS

Credits -2 **Instructional hours: 60**

1. Installation of Android studio.
2. Development of Hello World Application
3. Create an application that takes the name from a text box and shows hello message along with the name entered in textbox, when the user clicks the OK button.
4. Create a screen that has input boxes for User Name, Password, Address, Gender(radio buttons for male and female), Age (numeric), Date of Birth (Date Picket), State (Spinner) and a Submit button. On clicking the submit button, print all the data below the Submit Button (use any layout).
5. Design an android application to create page using Intent and one Button and pass the Values from one Activity to second Activity.
6. Design an android application Send SMS using Intent
7. Create an android application using Fragments
8. Design an android application Using Radio buttons
9. Design an android application for menu.
10. Create a user registration application that stores the user details in a database table.

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	2	3	2	3	3	3	2	3	3	3
CO2	3	3	3	3	2	3	2	3	3	3	2	3	3	3
CO3	3	3	3	3	2	3	2	3	3	3	2	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1.	End Semester Examination	Once in a Semester
2.	CIA I	Once in a Semester
3.	CIA II	Once in a Semester
4.	Record Note	Once in a Semester

Course designed by : Ms. R.Usha Devi	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

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SEMESTER : IV

COURSE CODE : 23UCS4SB2

TITLE OF THE COURSE: SKILL BASED II:DATA ANALYTICS IN BIOINFORMATICS

(Skill Development)

COURSE OBJECTIVES:

- To understand the fundamental principles in data analytics.
- To explore and to analyze genetic variation and mutation

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Explore data visualization and predictive models	**K3**
CO2	Emphasis and study protein sequence and structure analysis	**K3**
CO3	Record: Implement the Program and print the Results	**K3**

Credits – 2 **Instructional Hours –45**

LIST OF PRACTICALS

DATA ANALYTICS

1. Implement word count / frequency programs using MapReduce.
2. Implement an MR program that processes a weather dataset.
3. Implement SVM / Decision tree classification techniques.
4. Visualize data using any plotting framework.

BIOINFORMATICS

1. Retrieve any one FASTA sequence of GABA transaminase in Human, mouse, pig and chick.
2. Find out the number of entries in SWISSPROT for Serine kinase in PIG.
3. Find the gene sequences of Mouse origin similar to U80226.1.
4. Find the disease with which PPE protein is involved.

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

CO1	3	3	3	3	3	3	3	2	2	3	3	3	-	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER: III

COURSE CODE: 23UCS5C08

TITLE OF THE COURSE :CORE VIII - COMPUTER NETWORKS

(Skill Development)

COURSE OBJECTIVES:

- To understand the basic terminology of computer networks
- To analyze the protocols in networking and the layers in the protocol stack.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Discuss the foreword of networks with network hardware/software and the Architectural models.	**K2**
CO2	Express the functionalities of physical layer with wired and wireless transmission media.	**K2**
CO3	Interpret data link layer that transfers data to other layer using necessary techniques.	**K2**
CO4	Discuss the various routing paths of data transfer for delivering the data to the networked host computers through suitable transport/application layer protocols.	**K2**
CO5	Illustrate the application layer using web based features.	**K2**

SYLLABUS

Credits - 5 **Instructional hours- 75**

UNIT-I: Conceptual View to Networks (K2) **15 hours**

Introduction to Network - Uses - Network Hardware - Network Software - The OSI Reference Model - The TCP/IP Reference Model - A Comparison of OSI and TCP/IP Reference Model.

UNIT-II: Physical Layer (K2) **15 hours**

Guided Transmission Media - Communication Satellites - Structure of the Telephone System – Modems - Wireless Local Loops - Switching.

UNIT–III: Data Link Layer (K2) **15 hours**

Data Link Design Issues - Error Detection and Correction - The Channel Allocation Problem - Carrier Sense Multiple Access Protocols - Collision-Free Protocols - Limited Contention Protocols - Bluetooth Architecture - Bluetooth Applications – Repeaters - Hubs - Bridges - Switches - Routers - Gateways.

UNIT-IV: Network and Transport Layer (K2) 15 hours

Network Layer Design Issues - The Optimality Principle - Shortest Path Routing - Flooding - Distance Vector Routing - Routing for Mobile Hosts - The Transport Service - Services Provided to the Upper Layers - Transport Service Primitives - Berkeley Sockets - Elements of Transport Protocols.

(Beyond thecurriculum : Advanced Multicast routing model)

UNIT-V: Application Layer (K2) 15 hours

DNS – DNS Name Space - Resource Records - Name Servers - Electronic Mail Architecture - Services -The User Agent-Message Formats -Message Transfer - Final Delivery –The World Wide Web Architectural Overview - Wireless Web.

(***Self study:The User Agent-Message Formats***)

TEXT BOOK:

1. Andrew S. Tanenbaum, *Computer Networks* (4th Edition).Pearson Education Publications. (2006)

REFERENCE BOOKS:

1. Miller ,*Data and Network Communications* (1st Edition), Vikas Publications. (2001)
2. William A Shay,*Understanding Data Communications and Networks* (2ndEdition) Vikas Publications. (2001)
3. Kirubanand .V.B. & Suresh .S , *Computer Network* (1st Edition) R.K.Publications. (2003)
4. Behrouz A forouzan , *Data communications and Networking* (4th Edition) Tata Mc Graw Hill Publications. (2006)

BLENDED LEARNING

MAPPING OF CO's WITH POs/PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	1	1	2	2	2	3	3	2	2	2
CO2	3	3	2	2	2	1	3	2	2	3	1	3	2	3
CO3	3	2	2	2	2	1	3	2	3	3	2	3	2	3
CO4	3	3	2	2	2	2	2	3	2	3	2	2	2	3
CO5	3	3	2	2	2	2	3	3	2	1	2	3	3	3

UNIT	TOPICS	LINKS
V	DNS name space	https://www.youtube.com/watch?v=5fvb-nGG3Zs
V	Disk Scheduling Strategies	https://www.bluehost.com/resources/how-does-dns-work-what-are-name-servers-and-what-dns-types-do-you-need-to-know-for-your-website/
V	Files, File Organization, File Allocation	https://www.youtube.com/watch?v=EbHMDZTVrJg
V	Electronic Name Architecture	https://www.youtube.com/watch?v=6jKGSthvIjY
V	The User Agent	https://www.youtube.com/watch?v=ZmrFDD_61Uc
V	Message formats and Message Transfer	https://www.youtube.com/watch?v=JRrraICbIjc
V	Final Delivery	https://www.youtube.com/watch?v=rYodcvhh7b8
V	The World Wide Web Architecture Overview	https://www.youtube.com/watch?v=3gTljt5YN-U
V	Wireless Web	https://www.techtarget.com/searchmobilecomputing/definition/wireless

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS:

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Model	Once in a Semester
5	Assignment (Unit I &II)	Twice in a Semester
6	Seminar(Unit III & IV)	Twice in a Semester
7	Case Study (Unit V)	Once in a Semester

Course designed by : Ms. S.Maria Sylviaa			Verified by HOD : Ms. R.Uma Maheswari	
Checked by	**CDC : Dr.A.Jansi Rani**		**Approved by :**	
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science	**Principal**	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

Coimbatore	Sri Krishna Arts and Science College Coimbatore	Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore		

SEMESTER: V

COURSE CODE: 23UCS5C09/23UCA5C09

TITLE OF THE COURSE: CORE IX -RELATIONAL DATABASE MANAGEMENT SYSTEM

(Employability and Skill Development)

COURSE OBJECTIVES:

- To provide the domain concepts to design databases.
- To build effective database tables applying the PL/SQL procedure techniques.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Illustrate the basic concepts of designing database using procedure.	**K2**
CO2	Infer the overview of Oracle environment with the syntax to design tables in real time applications.	**K2**
CO3	Implement the working of tables using SQL queries on data.	**K3**
CO4	Interpret the fundamentals in PL/SQL with examples.	**K2**
CO5	Apply named blocks to modularize PL/SQL programs using cursors.	**K3**

SYLLABUS

Credits-5 **Instructional hours – 75**

UNIT– I: Introduction to Database Design Concepts (K2) 15 hours

Database – Relationship – DBMS - Relational data Model – Integrity Rules – Theoretical Relational Languages - Data Modeling and Normalization – Dependency - Normal Forms – Dependency Diagrams – Examples of Normalization - De–Normalization.

UNIT– II: Overview of Oracle with Data Definition Language (K2) 15 hours

Personal Database – Client / Server Database - Oracle Introduction – SQL * Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL Plus - Naming Rules and Conventions – Data Types – Constraints –

Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT–III: Data Manipulation Language (K3) 15 hours

Adding a new Row/Record – Customized Prompts – Updating and Deleting Existing Row/Record – Retrieving Data from Table – Arithmetic Operations – Restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – Built in Functions – Grouping Data - Join - Set Operators.

(Beyond the Curriculum: Objects, Transactions and Data Control)

UNIT–IV: Procedural Language Extensions to SQL (K2) 15 hours

History – Fundamentals – Block Structure – Comments – Data Types – Composite Data Types – Declaration – Assignment Operation – Bind Variables – Printing – Arithmetic Operators - Control Structures – Nested Blocks – SQL in PL/ SQL – Data Manipulation – Transaction Control Statements.

(Self Study:Control Structures)

UNIT–V: Named Blocks using Cursors (K3) 15 hours

Cursors – Implicit & Explicit Cursors and Attributes – Cursors FOR Loops – SELECT … FOR UPDATE – WHERE CURRENT OF Clauses – Cursors with parameters – Cursors Variables – Exceptions – Types of Exceptions - Procedure – Functions – Packages – Triggers – Data Dictionary Views.

TEXTBOOK:

1. Nilesh Shah, *Database Systems Using Oracle* (2nd Edition), Prentice Hall,United States. (2004)

REFERENCE BOOKS:

1. Arun K. Majumdar, Pritimoy Bhattacharya, *Database Management Systems* (1st Edition), McGraw Hill Education,India. (2004)
2. Gerald V. Post, *Database Management Systems,* (3rd Edition),Tata McGraw Hill Education. (2004)
3. Ivan Bayross, *SQL, PL/SQL The programming language of Oracle* ,(4th revised Edition), BPB Publications. (2009)
4. Deshpande P.S (2003), *SQL/PLSQL for Oracle9i*, (Reprint edition), Dreamtech press.(2009)

BLENDED LEARNING:

UNIT	TOPICS	LINKS
V	Fundamentals, Block Structure,Assignment Operation	https://www.youtube.com/playlist?list=PLL_LQvNX4xKyiExzq 9GKwORoH6nvaRnOQ

V	Implicit & Explicit Cursors and Attributes Cursors SELECT Cursors Variables	https://www.youtube.com/playlist?list=PLdNnjIwbbBta4OtYXI-C0EceBrl8a5xas

MAPPING OF COs WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	2	2	2	-	2	2	3	3	3
CO2	3	3	3	3	2	3	2	3	2	3	3	3	3	3
CO3	3	3	3	3	2	3	2	3	2	3	3	3	3	3
CO4	3	3	3	2	2	3	2	2	-	2	2	2	3	3
CO5	3	3	3	2	2	3	2	3	-	2	2	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1.	End Semester Examination	Once in a Semester
2.	CIA I	Once in a Semester
3.	CIA II	Once in a Semester
4.	Model	Once in a semester
5.	Assignment (Unit I & II)	Twice in a semester
6.	Seminar (Unit III & IV)	Twice in a semester
7.	Case Study (Unit V)	Once in a Semester

Course designed by : Ms. P.Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

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SEMESTER: V

COURSE CODE: 23UCS5CP5 / 23UCA5CP5

TITLE OF THE COURSE: CORE PRACTICAL V - RELATIONAL DATABASE MANAGEMENT SYSTEM

(Employability and Skill Development)

COURSE OBJECTIVES:

- To inculcate knowledge on DML and DDL Commands.
- To inculcate knowledge on Procedures, Functions and Trigger concepts.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Illustrate the basic concepts of Data Definition Language using Built in Functions and different operations in tables.	**K3**
CO2	Manipulate the data using control structures and named blocks in PL/SQL	**K3**
CO3	Record : Implement Program and present Result	**K3**

Total Credits - 3 **Instructional hours – 75**

LIST OF PRACTICALS

1. Create an employee table and perform the following updation and alteration.
    a. Add a new column.
    b. Change the size of salary column
    c. Increase the salary of all employees by 20 %
    d. Change the Department for two employees.
    e. Remove one of the employee record
    f. Change the name of employee table.
2. Create an Item table and write queries for the following statements using built in Functions.
    a. Find the minimum and maximum of item price.
    b. Find the average price for two items and display the rounded value of average.

c. Concatenate Item name and Quantity.
d. Find the length of the department.
e. Retrieve the Manufacture date in 'DD/Month/YY' format.
f. Retrieve the Item name, manufacture date after adding 3 months to the date.

3. Create a Student Information table and perform the following operations.
    a. Comparison Operations
    b. Logical Operations
    c. Set Operations
    d. Sorting and Grouping
4. e a Students Information table and write a PL/SQL Block. Find the Total, Average marks and Results.
5. Write a PL/SQL Block to split the Students Information table into two, one with the passed and other with failed.
6. Write a PL/SQL Block to join two tables, first table contains Roll Number, Name, Total and second table contains the Roll Number and Address.
7. Write a PL/SQL Block to implement Exception Handling.
8. Write a program to design an Electricity Bill using stored procedure concept.
9. Write a Recursive Function in PL/SQL to find the Factorial of N numbers
13. Write a Database Trigger to implement the Master-Detail Relationship.

MAPPING OF COs WITH POs / PSOs

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	3	2	2	3	2	3	-	-	2	3	3	3
CO2	3	3	3	2	3	3	2	3	-	-	2	3	3	3
CO3	3	3	3	2	3	3	2	3	-	-	2	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	**Assessment Methods**	**Frequency of Assessment**
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester

4	Record	Once in a Semester

Course designed by : Ms. P.Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER : V

COURSE CODE : 23UCS5E01

TITLE OF THE COURSE: ELECTIVE I: BASICS OF ROBOTIC PROCESS AUTOMATION

(Skill Development)

COURSE OBJECTIVES:

- To automate repeatable and likely boring business tasks in order to allow employees
- To use their skills to work on more complex ones requiring advanced problem-solving.

COURSE OUTCOMES

At the end of the course the student will be able to

CO1	Describe RPA, where it can be applied and how it's implemented.	**K1**
CO2	Describe the different types of variables, Control Flow and data manipulation techniques.	**K1**
CO3	Identify and understand Image, Text and Data Tables Automation.	**K2**
CO4	Explain the User Events and various types of Exceptions and strategies.	**K2**
CO5	Understand the Deployment of the Robot and to maintain the connection.	**K2**

SYLLABUS

Credits – 4 **Instructional Hours – 75**

UNIT-I INTRODUCTION TO ROBOTIC PROCESS AUTOMATION:(K1) 15 Hours

Scope and techniques of automation, Robotic process automation - What can RPA do?, Benefits of RPA, Components of RPA, RPA platforms, The future of automation.

RPA BASICS:History of Automation - What is RPA - RPA vs Automation - Processes & Flowcharts - Programming Constructs in RPA - What Processes can be Automated - Types of Bots - Workloads which can be automated - RPA Advanced Concepts - Standardization of processes - RPA Development methodologies - Difference from SDLC - Robotic control flow architecture - RPA business case - RPA Team - Process Design Document/Solution Design Document - Industries best suited for RPA - Risks & Challenges with RPA - RPA and emerging ecosystem.

UNIT-II RPA TOOL INTRODUCTION AND BASICS: (K1) 15 Hours

Introduction to RPA Tool - The User Interface - Variables - Managing Variables - Naming Best Practices - The Variables Panel - Generic Value Variables - Text Variables - True or False Variables - Number Variables - Array Variables - Date and Time Variables - Data Table Variables - Managing Arguments - Naming Best Practices - The Arguments Panel - Using Arguments - About Imported Namespaces - Importing New Namespaces- Control Flow - Control Flow Introduction - If Else Statements - Loops - Advanced Control Flow - Sequences - Flowcharts - About Control Flow - Control Flow Activities - The Assign Activity - The Delay Activity - The Do While Activity - The If Activity - The Switch Activity - The While Activity - The For Each Activity - The Break Activity - Data Manipulation- Data Manipulation Introduction - Scalar variables, collections and Tables - Text Manipulation - Data Manipulation - Gathering and Assembling Data

UNIT-IIIADVANCED AUTOMATION CONCEPTS & TECHNIQUES: (K2) 15 Hours

Recording Introduction - Basic and Desktop Recording - Web Recording - Input/Output Methods - Screen Scraping - Data Scraping - Scraping advanced techniques - Selectors - Defining and Assessing Selectors - Customization - Debugging - Dynamic Selectors - Partial Selectors - RPA Challenge - Image, Text & Advanced Citrix Automation - Introduction to Image & Text Automation - Image based automation - Keyboard based automation - Information Retrieval - Advanced Citrix Automation challenges - Best Practices - Using tab for Images - Starting Apps - Excel Data Tables & PDF - Data Tables in RPA - Excel and Data Table basics - Data Manipulation in excel – Extracting Data from PDF - Extracting a single piece of data - Anchors - Using anchors in PDF.

UNIT-IV HANDLING USER EVENTS & ASSISTANT BOTS, EXCEPTION HANDLING: (K2) 15 Hours

What are assistant bots? - Monitoring system event triggers - Hotkey trigger - Mouse trigger - System

trigger - Monitoringimageandelementtriggers - Anexampleofmonitoringemail-Exampleofmonitoringacopyingeventandblocking it - Launching an assistant bot on a keyboardevent.EXCEPTIONHANDLING:Debugging and Exception Handling - Debugging Tools - Strategies for solving issues - Catching errors.

(*Self Study:* Debugging Tools, Catching errors)

UNIT-VDEPLOYING AND MAINTAINING THE BOT: (K2) 15 Hours

Publishing using publish utility - Creation of Server - Using Server to control the bots - Creating a provision Robot from the Server - Connecting a Robot to Server - Deploy the Robot to Server - Publishing and managing updates - Managing packages - Uploading packages - Deleting packages.

TEXT BOOKS:

1. Alok Mani Tripathi, "*Learning Robotic Process Automation*", Packt Publishing, 2018.

REFERENCE BOOKS:

1. Tom Taulli "*The Robotic Process Automation Handbook*" , A Guide to Implementing RPA Systems, (2020).
2. Frank Casale , Rebecca Dilla, Heidi Jaynes , Lauren Livingston, "*Introduction to Robotic Process Automation: a Primer*", (1st Edition), Institute of Robotic Process Automation, (2015).
3. Richard Murdoch, *Robotic Process Automation: Guide To Building Software Robots, Automate Repetitive Tasks & Become An RPA Consultant"*, (1st Edition), Independently Published, (2018).
4. Srikanth Merianda ," *Robotic Process Automation Tools, Process Automation and their benefits: Understanding RPA and Intelligent Automation"*, (1st Edition), Consulting Opportunity Holdings LLC, (2018).
5. Lim Mei Ying, "*Robotic Process Automation with Blue Prism Quick Start Guide: Create software robots and automate business processes*", (1st Edition), Packt Publishing, (2018)

BLENDED LEARNING:

UNIT	TOPICS	LINKS
V	Publishing using publish utility	https://www.youtube.com/watch?v=GOdeo0keTIY
V	Creation of Server	https://www.youtube.com/watch?v=vKRlb266UlA
V	Using Server to control the bots ,Creating a provision Robot from the Server	https://www.techtarget.com/whatis/definition/bot-robot

V	Connecting a Robot to Server ,Deploy the Robot to Server	https://www.theserverside.com/blog/Coffee-Talk-Java-News-Stories-and-Opinions/Create-your-first-RPA-robot-to-UiPath-Orchestrator-tutorial
V	Publishing and managing updates	https://docs.uipath.com/orchestrator/v2019/docs/connecting-robots-to-orchestrator
V	Managing packages , Uploading packages , Deleting packages	https://www.youtube.com/watch?v=j0YDb3Bgg5o

MAPPING OF CO'S WITH POs AND PEOs

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	-	-	-	-	-	-	-	2	-	-	3	-
CO2	3	3	2	-	2	-	-	-	-	-	2	-	3	-
CO3	3	3	-	2	-	2	2	-	-	-	2	3	3	2
CO4	3	3	2	2	-	-	-	2	1	-	3	3	3	3
CO5	3	3	3	3	2	-	2	-	-	2	3	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS:

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Group Discussion (Unit V)	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER: V

COURSE CODE: 23UCS5E02

TITLE OF THE COURSE: ELECTIVE II: MATLAB PROGRAMMING

(Employability)

COURSE OBJECTIVES:

- To learn the basics of MATLAB Programming
- To implement programming and problem solving.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO 1	Illustrate the basic concepts of Matlab.	**K2**
CO 2	Explain Matlab Designing and Plotting functions.	**K2**
CO 3	Demonstrate the types of User defined Functions.	**K3**
CO4	Discuss the Applications of Matlab in various fields and the file concepts.	**K2**
CO5	Discuss the Advanced Topics on Matlab such Visualization and Statistics.	**K2**

SYLLABUS

Credits – 4 **Instructional hours: 75**

UNIT I :INTRODUCTION TO MATLAB (K2) **15 hours**

Introduction-Variables and Assignment statements- Expressions-Characters and encoding-Vectors and Matrices-Introduction to MATLAB programming: MATLAB Scripts-Input and output-User Defined functions that return a single value-Passing multiple Arguments-Functions with Local variables.

(Self study : Input and output-User Defined functions that return a single value)

UNIT II :CONTROL STRUCTURES (K2) **15 hours**

Selection Statements: Relational Expressions-If Statement-if Else Statement- Nested if Else-Switch Statement-Menu Function-The is functions in MATLAB-Looping: for Loop-Nested for Loops-Vectorizing-While Loops

UNIT III :PROGRAM ORGANIZATION (K3) **15 hours**

Types of User-Defined Functions-Matlab Program Organization-Menu Driven Modular Program-Variable Scope-Debugging Techniques. StringManipulations: Creating String Variables-Operations on Strings-Converting between String and Number Types.

UNIT IV: DATASTRUCTURES AND FILES (K2) **15 hours**

Cell Arrays and Structures:Creating Cell Arrays-Creating and Modifying Structure variables-Advanced File Input and Output:Opening and closing a aFile-Reading from Files-Writing to Files-Appending to Files-Writing and reading Spreadsheet Files.

UNIT V :VISUALIZATION PLOTS AND STATISTICS (K2) 15 hours

MATLAB Plots:Plot Functions-Animation-Three Dimensional Plots-Customizing Plots- Graphics Properties-Plot Applications.Basic Statistics, Searching and Sorting:Statistical Functions-Set Operations-Sorting-Indexing-Sequential Search.

TEXT BOOK

1. Stormy Attaway, *MATLAB: A Practical introduction to Programming and Problem Solving* , Elsevier Inc. Indian Reprint ISBN:978-93-80501-64-2. (2009)

REFERENCE BOOKS

1. Ram N Patel, Ankush Mittal, *Programming in MATLAB: A Problem Solving Approach* , (1st edition) , Pearson Education India.(2014)

2. Delores M. Etter, *Introduction to MATLAB,* Pearson Education ISBN-13 : 978- 935394066 (2020)

3. Stormy Attaway , *Matlab: A Practical Introduction to Programming and Problem Solving* , publisher Butterworth-Heinemann .(2018)

BLENDED LEARNING :

UNIT	TOPICS	LINKS
V	MATLAB Plots:Plot Functions	https://youtu.be/cyxFsSJSxwE
V	Animation	https://youtu.be/3I1_5M7Okqo
V	Three Dimensional Plots	https://youtu.be/NkxRM6VbmW8
V	Customizing Plots	https://youtu.be/nmXkxWlx5aw
V	Graphics Properties	https://youtu.be/ZIjRXpqVtp0
V	Plot Applications	https://youtu.be/gDmpqn92s5U
V	Basic Statistics, Searching and Sorting:Statistical Functions	https://youtu.be/4ipdsefA5ik
V	Set Operations	https://youtu.be/7BJUX3oIlz0
V	Sorting-Indexing-Sequential Search.	https://youtu.be/83S48Fs9WhY

MAPPING OF CO's WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	3	2	2	1	1	2	2	2	2	2
CO2	1	1	3	1	1	3	3	3	3	1	1	3	2	3
CO3	3	2	3	2	3	3	2	1	3	3	3	3	3	3
CO4	-	3	-	-	-	3	1	2	1	3	3	3	3	3
CO5	3	-	-	3	-	3	3	3	-	-	-	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Case Study (Unit V)	Once in a Semester

Course designed by : Ms. P.Avila Clemenshia	**Verified by HOD : Ms. R.Uma Maheswari**

Checked by CDC : Dr.A.Jansi Rani	Approved by : Principal

				
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SEMESTER: V

COURSE CODE: 23NCS5E01

TITLE OF THE COURSE: NON-MAJOR ELECTIVE- SENSOR APPLICATIONS

(Entrepreneurship and Skill development)

COURSE OBJECTIVES:

- To understand the basics of Wireless sensor Networks
- To learn the Architecture of WSN
- To understand the concept of Networking and Networking in WSN

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Design a wireless sensor network for given sensor data using microcontroller, transceiver, middleware and operating system.	**K2**
CO2	Evaluate the performance of schedule based and random Medium Access Control protocols for power consumption, fairness, channel utilization and control packet overhead.	**K3**
CO3	Evaluate the performance of Geographic routing protocols for power consumption, scalability and latency parameters.	**K3**
CO4	Evaluate the performance of transport control protocols for congestion detection and avoidance, reliability and control packet overhead parameters.	**K2**
CO5	Understand and explain mobile data-centric networking principles.	**K3**

SYLLABUS

Credits – 4 **Instructional hours – 60**

UNIT I: INTRODUCTION ANDAPPLICATIONS OFWIRELESS SENSORNETWORKS

(K2) 12 Hours

Background of Sensor Network Technology-Applications of Sensor Networks-Basic Overview of the Technology- Basic Sensor Network Architectural Elements-Examples of Category 2 WSN Applications-Home Control-Medical Applications. Examples of Category 1 WSN Applications-Sensor and Robots- Military Applications.

UNIT II:BASIC WIRELESS SENSOR TECHNOLOGIES (K3) 12 Hours

Sensor Node Technology: Overview-Hardware and Software-Sensor Taxonomy-WN Operating Environment- WN Trends. Available Wireless Technologies-Campus Applications-MAN/WAN Applications.

UNIT III: MEDIUM ACCESS CONTROL PROTOCOLS FOR WIRELESS SENSOR NETWORKS (K3) 12 Hours

Fundamentals of MAC Protocols- Performance Requirements-Common Protocols- MAC Protocols for WSNs: Schedule-Based Protocols- Random Access-Based Protocols. Routing Strategies in Wireless Sensor Networks-WSN Routing Techniques, Flooding and Its Variants-Low-Energy Adaptive Clustering Hierarchy-Directed Diffusion- Geographical Routing.

(Self Study :Wsn Routing Techniques, Flooding And Its Variants)

UNIT IV:TRANSPORT CONTROL PROTOCOLS FOR WIRELESS SENSOR NETWORKS (K2) 12 Hours

Traditional Transport Control Protocols- TCP (RFC 793)-UDP (RFC 768)- Mobile IP-Feasibility of Using TCP or UDP for WSN'S. Examples of Existing Transport Control Protocols: CODA (Congestion Detection and Avoidance)-ESRT (Event-to-Sink Reliable Transport).

UNIT V:OPERATING SYSTEMS& PERFORMANCE FOR WIRELESS SENSOR NETWORKS (K3) 12 Hours

Operating System Design Issues-Examples of Operating Systems-TinyOS-Mate-MagnetOS- MANTIS -OSPM-EYES OS- SenOS- EMERALDS- PicOS. Performance Modeling of WSNs-Performance Metrics-Basic Models- Network Models.

(Self Study :Picos. Performance Modeling Of WSNs)

TEXT BOOK

1.Kazem Sohraby Daniel Minoli Taieb Znati: *Wireless Sensor Networks Technology, Protocols, and Applications*, Published by John Wiley & Sons, Inc., Hoboken, New Jersey, (2010)

REFERENCE BOOKS

1.Holger Karl and Andreas Willig, "*Protocols and Architectures for wireless sensor networks"*, WILEY

2. W. Dargie and C. Poellabauer, "*Fundamentals of Wireless Sensor Networks –Theory and Practice*", Wiley (2010)

3. KazemSohraby, Daniel Minoli and TaiebZnati, "*Wireless sensor networks -Technology, Protocols, and Applications*", Wiley Interscience (2007)

4) Takahiro Hara,Vladimir I. Zadorozhny, and Erik Buchmann, "*Wireless Sensor Network 1. Technologies for the Information Explosion Era*", springer (2010).

5) Sridhar S. Iyengar, NandanParameshwaran, Vir V. Phoha, N. Balakrishnan, Chuka D. Okoye, *Fundamentals of Sensor Network Programming: Applications and Technology* , Wiley

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Operating system Design issues	https://www.youtube.com/watch?v=t_McsJ1RGQg
V	Examples of Operating System	https://youtu.be/JqmrEVJUyss
V	Tiny OS	https://youtu.be/QpnQ8QYnJt8
V	Mate-Magnet OS	https://youtu.be/Ilkf7xdN1S8
V	MANTIS-OSPM-EYES OS	https://youtu.be/Hla3VFy2lUk
V	Modelling of WSNs	https://youtu.be/urWv-_EqS9M
V	Performance metrics	https://youtu.be/PrnNKZJj-Oc
V	Basic Models-Network Models	https://youtu.be/YbLAUMztZis

MAPPING OF CO'S WITH POs/PEOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	3	2	1	1	1	1	1	2	1	1	2	2
CO2	3	2	3	2	1	1	3	2	2	3	1	3	3	3
CO3	3	3	2	2	2	1	3	2	2	3	2	3	3	3
CO4	3	3	3	3	2	3	3	2	2	3	2	3	3	3
CO5	3	3	2	2	2	2	3	2	2	3	2	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester

3	CIA II	Once in a Semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Group Discussion unit V	Once in a Semester

Course designed by : Ms. C.Clement Sherlin	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER : V

COURSE CODE: 23UCS5SB3

TITLE OF THE COURSE: SKILL BASED III - ROBOTIC PROCESS AUTOMATION LAB *(Skill Development)*

COURSE OBJECTIVES

- To provide different training sessions on RPA.
- To use their skills to work on more complex ones requiring advanced problem-solving.

COURSE OUTCOMES

At the end of the course the student will be able to

CO1	Understand the basics of Robotic Process Automation.	**K1**
CO2	Identify processes which can be automated and Setup the environment.	**K1**
CO3	Record: Implement the Program and print the Results	**K3**

LIST OF PRACTICALS

Credits-2 **Instructional Hours - 45**

1. Install and setup UiPath and Connect UiPath with Orchestrator to create simple bot

2. Create a UiPath Robot, for displaying a message box with 5 seconds delay time with a statement "The first robot"
3. (i) Create the string variable named strVar1 and drop the activity Write Line to write: "First name" and the name entered is stored in the variable

   (ii) Create the integer variable named int Our Number and set the default value to 960. Convert it to a string and write the number out in a WriteLine.

   (iii) Create the Double variable named dbl Out Decimal Number and set the default value to 1.743. Convert it to a string and write the number out in a WriteLine.

   (iv) Create a Boolean variable and use it in an If to present a MessageBox

   (v) Build a Data Table and create the output variable asdtInput
4. Create a guessing game by assigning integer variable with the number between 50-80. Place the activity to get user input to check the secret variable is equal to each other if yes the user wins else it asks for a new number to guess whether the number is high or low
5. Create a bot to calculate the total columns of fruit orders (quantity multiplied with price) by reading the excel sheet. Find the highest order of fruits order and enter yes in the separate field.
6. Create a UiPath robot to take user input (the user will type an integer, when prompted)
   - Open the WindowsCalculator
   - Multiply the user input with 8 using the WindowsCalculator
   - Present the output in a MessageBox

MAPPING OF CO'S WITH POs AND PEOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	-	-	-	-	-	-	2	-	-	3	-
CO2	3	3	2	-	2	-	-	-	-	-	2	-	3	-
CO3	3	3	-	2	-	2	2	-	-	-	2	3	3	2

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS:

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Record Note	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER: VI

COURSE CODE: 23UCS6C10/23UCA6C10

TITLE OF THE COURSE :CORE X : SOFTWARE ENGINEERING

(Entrepreneurship)

COURSE OBJECTIVES:

- To inculcate knowledge on different phases of Software Engineering.
- To educate on various mechanisms and tools for creating quality software in various scenarios.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Associate the problem scenario with appropriate software solution strategy.	**K2**
CO2	Estimatethe cost for particular software development process using various cost estimation methods.	**K2**
CO3	Compare various design technique/s and problem solving guidelines using modern programming language.	**K2**
CO4	Relate the relevant software testing strategy to ensure the correctness and quality of the product.	**K2**
CO5	Discussthe software engineering tools for different problem areas including web applications using reengineering techniques and tools.	**K2**

SYLLABUS

Credits -4 **Instructional hours -60**

UNIT-I: Software Project Planning Concepts (K2) 12 hours

Introduction – Definitions – Size factors – Quality and Productivity Factors – Managerial Issues – Planning a Software Project - Defining the Problem- Developing a Solution Strategy – Planning Development Process – Planning an Organizational Structure.

UNIT-II:Software Cost Estimation (K2) 12 hours

Software Cost Factors – Software Cost Estimation Techniques – Estimating Software Maintenance Costs - Software Requirements Definition - Software Requirements Specification-Formal Specification Techniques.

UNIT-III: Software Design and Implementation Concepts (K2) 12 hours

Software Design – Fundamental Design Concepts - Design Notations – Design Techniques –User Interface Design – Interface design activities -Structured Coding Techniques - Modern Programming Language Features - Introduction – Type Checking – User Defined Data Types – Data Abstraction – Exception Handling.

(Beyond the Curriculum-Modularity in Model Checking)

UNIT-IV:Software Testing Strategies (K2) 12 hours

Software Testing Strategies – Strategic Approach to Software Testing – Validation Testing - System Testing – Art of Debugging –Software Testing Techniques – Software Testing Fundamentals - White Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing.

UNIT-V: Software Reengineering and Case Tools (K2) 12 hours

Mapping Requirements into a Software Architecture – Transform Mapping – Transaction Mapping. Software Quality – Software Reengineering – Reverse Engineering – Building Blocks for CASE – A Taxonomy Of CASE Tools.

(Self Study: Issues in Software Maintenance)

TEXT BOOKS:

1. Richard Fairley (2010) SOFTWARE ENGINEERING CONCEPTS (33rd reprint). Tata Mc Graw Hill Publication Company.
2. Roger S. Pressman (2010) SOFTWARE ENGINEERING (5th Edition) McGraw Hill International

REFERENCE BOOK:

1. Ian Sommerville (2003) Software Engineering (5th Edition) Pearson Education.
   Rajib Mall (2014) Fundamentals of Software Engineering, (4th Edition) Prentice-Hall India, Eastern Economy Edition.

BLENDED LEARNING

UNIT	TOPICS	LINKS
IV	Software testing strategies	https://www.youtube.com/watch?v=7eHES5V8YPA
IV	The Art of Debugging	https://www.youtube.com/watch?v=0Mcn8atRGfU
IV	Validation testing	https://www.youtube.com/watch?v=5_GA2XHb8zY
IV	System testing	https://www.youtube.com/watch?v=bp9qi3R7K0U

MAPPING OF CO's WITH Pos AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	2	2	2	2	3	1	3	3	3	3
CO2	2	3	1	1	3	3	1	3	2	1	3	3	3	2
CO3	3	3	2	2	2	1	2	2	2	3	3	3	3	3
CO4	3	3	2	2	2	2	2	3	1	2	3	3	3	3
CO5	3	3	2	2	2	2	3	3	2	3	3	3	3	3

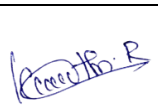
(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.NO	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester

3	CIA II	Once in a semester
4	Model	Once in a semester
5	Assignment (Unit I & II)	Twice in a semester
6	Seminar (Unit III & IV)	Twice in a semester
7	Case Study (Unit V)	Once in a Semester

Course designed by : Ms. M. Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
Dr.R.Kavitha Assistant Professor in Computer Science PSG College of Arts and Science Coimbatore	Dr.N.A.Sheela Selvakumari Associate Professor in Computer Science Sri Krishna Arts and Science College Coimbatore	Dr.R.Vijayabhanu Assistant Professor (SG) in Computer Science Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore	Ms.R.Janane Priya Associate Consultant Capgemini Technology Services Bengaluru.	Ms.S.Esther Darthi Developer Florescer Infotech Coimbatore

SEMESTER: VI

COURSE CODE: 23UCS6C11

TITLE OF THE COURSE : CORE XI:VISUAL PROGRAMMING

(Employability)

COURSE OBJECTIVES:

- To inculcate the knowledge of Dot Net programming concepts.
- To design and develop Windows based applications using Visual Basic .net that meet commercial standards.
- To develop Web based applications using ASP .Net and connecting data sources using ADO.net

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Illustrate the fundamental concepts of Visual Basic.net	**K2**
CO2	Implement simple programs by using windows controls.	**K3**
CO3	Construct Applications using menus and dialog controls.	**K3**
CO4	Implement database applications using ADO .Net.	**K3**
CO5	Demonstratedatabase Access in Web Application.	**K3**

SYLLABUS

Credits- 5 **Instructional hours: 75**

UNIT- I: Fundamentals of Visual Basic.Net (K2) 15 hours

The .NET Frame work and Common Language Runtime – BuildingVB.NET Applications – The Visual Basic Integrated Development Environment – Keywords- Statements-Declarations-Option and Import statements-Array and Dynamic Arrays –Strings-Branching and Looping Statements – Handling Date and Time – Functions-Procedures.

UNIT-II: Windows Form Controls (K3) 15 hours

Windows Forms- MDI Forms-Creating Windows Applications-Adding Controls To Forms-Handling Events- MSG Box Function- Input Box Function- Text Boxes – Rich Text Boxes-Labels - Link Labels-Buttons - Check Boxes – Radio Buttons – Panels - List Boxes -Combo Boxes -Tool Bar-Status Bar.

UNIT- III: Menus and Built-In Dialog Boxes (K3) 15 hours

Menus- Sub Menus- Adding Checkmarks to Menu Items- Menu Access Keys - Menu Shortcuts and Separators-Context Menus- Open File Dialogs- Save File Dialogs- Font Dialogs- Color Dialogs.

(Self Study:Adding Checkmarks to Menu Items)

UNIT-IV: Data access using ADO.Net **(K3)** **15 hours**

Databases – Data with the Server Explorer – Data with Data Adaptors and Datasets –ADO.Net and objects – Server Explorer – New Data Connection – Simple Binding – Complex Binding- Binding Data to Common Controls. **OleDb and SQL-** Connection Class – Command Class – DataAdapter Class –DataSet Class – DataReader Class - TDataTable Class – DataRow Class – DataColumn Class.

(Beyond the Curriculum-Compiler Directives, Exception Handling)

UNIT - V: Database Access in Web Application **(K3)** **15 hours**

Simple Data Binding – Complex Data Binding – Working With Data Grids –Customizing Data Grids – Navigating in Datasets – Controls Designed for use with Databases –Using Data Lists in Web Applications – Using Repeaters in Web Application.

TEXT BOOK

1.StevenHolzner (2016).Visual Basic .Net Programming (1st Edition) Dream tech Publication.

REFERENCE BOOKS

1. Alex Homer. VB.Net Programming, WROX Publications.

2. Mattj.Crouch(2002) ASP.Net and VB.Net Web Programming(1st Edition). Pearson Education.

BLENDED LEARNING:

UNIT	TOPICS	LINKS
V	Simple Data Binding	https://www.youtube.com/watch?v=Qr7wkakdsfU
V	Complex Data Binding	https://www.youtube.com/watch?v=lxS911HH2M0
V	Working With Data Grids	https://www.youtube.com/watch?v=71nbdexSAa8
V	Customizing Data Grids	https://www.youtube.com/watch?v=qCzc0coEaa8
V	Navigating in Datasets	https://www.youtube.com/watch?v= k1jlRjlaY
V	Controls Designed for use with Databases	https://geekflare.com/database-design-best-practices/
V	Using Data Lists in Web Applications	https://support.microsoft.com/en-us/office/create-a-drop-down-list-7693307a-59ef-400a-b769-c5402dce407b
V	Using Repeaters in Web Application	https://www.youtube.com/watch?v=LSRolsCJQuI

MAPPING OF CO'S WITH POs/PEOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	3	2	1	1	1	1	1	2	1	1	2	2
CO2	3	2	3	2	1	1	3	2	2	3	1	3	3	3
CO3	3	3	2	2	2	1	3	2	2	3	2	3	3	3
CO4	3	3	3	3	2	3	3	2	2	3	2	3	3	3
CO5	3	3	2	2	2	2	3	2	2	3	2	3	3	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	Assessment Methods	Frequency of Assessment
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Model	Once in a semester
5	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Group Discussion unit V	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**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SEMESTER: VI

COURSE CODE: 23UCS6CP6

TITLE OF THE PAPER - CORE PRACTICAL VI: VISUAL PROGRAMMING

(Employability)

COURSE OBJECTIVE

- To inculcate knowledge on Visual Basic .Net programming concepts.

COURSE OUTCOMES

At the end of the course the students will be able to

CO1	Illustrate the fundamental concepts of Visual Basic.net	**K1**
CO2	Implement simple programs by using String Functions.	**K1**
CO3	Record: Implement the Program and print the Results	**K3**

Credits-3 **Instructional hours: 75**

LIST OF PRACTICALS

1. Create a program using control and loop structures.
2. Create a program using String functions.
3. Create a program to build a status bar, toolbar and image to activate them using substring coding.
4. Create a program for designing a Edit box.
5. Create a program application to create using dialog box and dialog controls.
6. Build the Library project login form.
7. Create a program for using custom graphics listening to mouse events.
8. Create a program for student database.
9. Create a company Database and display their products details using datagrid.
10. Develop a simple project for Attendance System.

MAPPING OF CO'S WITH POs/PEOs

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	2	-	2	2	3	1	2	2	-	3	-	-	2
CO2	-	-	3	2	-	3	2	1	1	2	2	2	-	2
CO3	2	3	3	1	2	-	2	2	2	3	1	2	-	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	**Assessment Methods**	**Frequency of Assessment**
1	End Semester Examination	Once in a Semester

2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
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SEMESTER: VI

COURSE CODE : 23UCS6E01

TITLE OF THE COURSE: ELECTIVE I-ARTIFICIAL INTELLIGENCE

(Skill Development)

COURSE OBJECTIVES:

- To enable the students to gain basic knowledge about artificial intelligence.
- To introduce the basics of prolog programming language and execute AI problems using the same.
- To train the students to the various heuristic search techniques and expert systems.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO1	Demonstrate AI problems and techniques	**K1**
CO2	Understand machine learning concepts	**K2**
CO3	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning	**K3**
CO4	Analyze the impact of machine learning on applications	**K4**
CO5	Analyze and design a real world problem for implementation and understand the dynamic behavior of a system	**K5**

SYLLABUS

Credits– 4 **Instructional hours –75**

UNIT I: Introduction To Artificial Intelligence (K1) **15 hours**

What is artificial intelligence, Foundation of AI, History of AI agents, Applications of AI, AI representation, Future of AI, Issues in design of search programs-Blind search or Depth first search, Breadth first search, Logic Programming.

(Self study – Future of AI)

UNIT II : Introduction to Prolog (K2) **15 hours**

Introduction to Logic Programming by Prolog, Writing a Prolog Program, Structure of Prolog Program, Types, Search, Backtracking in Prolog, Lists.

UNIT III: Heuristics Search Techniques-I (K3) **15 hours**

Heuristics Search, Heuristics Search Methods-Generate and Test, Hill Climbing, Sleepest accent Hill Climbing, Simulated Annealing.

UNIT IV: Heuristics Search Techniques-II (K4) **15 hours**

Heuristic Search Methods-Best first Search, The A* Algorithm, And –Or Graphs, The AO*Algorithm, Means-end Analysis, Constraint Satisfaction.

UNIT V: Expert Systems (K5) **15 hours**

Utilization and Functionality, Architecture of Expert System, Steps to build Expert Systems.

TEXTBOOKS:

1. Neeta Deshpande (2008),Artificial Intelligence, Technical Publications , Pune .
2. V.S. Janakiraman, K. Sarukesi and P. Gopala krishnan(2007), Foundations of Artificial Intelligence and Expert Systems, Trinity Press , New Delhi

REFERENCEBOOKS

1. Elaine Rich and KavinKnight,(2003), Artificial Intelligence, Second Edition, TataMcGraw–Hill , New Delhi.
2. Ela Kumar,(2008), Artificial Intelligence, I.K. International Publishing HousePvt.Ltd.,NewDelhi.
3. Gupta.I, Nagpal.G (2017) Artificial Intelligence and Expert (1 st Edition), laxmi Publications PvtLtd,India.

BLENDED LEARNING

UNIT	TOPICS	LINKS
V	Utilization and Functionality	https://youtu.be/11nzrNkn9D8
V	Architecture of Expert System	https://youtu.be/NmF-VJ2NrT0
V	Steps to build Expert Systems	https://youtu.be/RT-EspnnuSQ

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	2	2	3	3	1	2	3	3	3
CO2	3	2	3	1	2	3	3	3	3	3	3	1	1	2
CO3	1	3	3	3	3	3	3	1	1	1	3	3	3	1
CO4	3	3	3	3	1	1	3	2	1	3	3	3	2	1
CO5	3	1	3	3	1	2	3	3	3	3	3	3	1	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.NO	Assessment Methods	Frequency Of Assessment
1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester

4	Model	Once in a semester
5	Assignment (Unit I & II)	Twice in a semester
6	Seminar (Unit III & IV)	Twice in a semester
7	Presentation of Paper in Conference (Unit V)	Once in a semester

Course designed by : Ms. C.Clement Sherlin	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER: VI

COURSE CODE: 23UCS6E02

TITLE OF THE COURSE: ELECTIVE II–DATA MINING AND WAREHOUSING

(Skill Development)

COURSE OBJECTIVES:

- To provide a strong foundation in understanding the concept of data mining
- To have a deep knowledge on data warehousing.

COURSE OUTCOMES:

At the end of the course the student will be able to

CO 1	Discuss the functionality of the various data mining concepts.	**K2**
CO 2	Explain the data preprocessing techniques using data mining.	**K2**
CO 3	Infer about the algorithms in Clustering	**K2**
CO 4	Infer about the algorithms in Classification	**K2**
CO 5	Compare different methodologies used in data warehousing.	**K2**

SYLLABUS

Credits- 4 **Instructional Hours- 75**

UNIT-I: INTRODUCTION TO DATAMINING (K2) 15 hours

Introduction to Data Mining – Kinds of Data –Kinds of Pattern – Data Mining Application -Data Mining Techniques – Data Mining Software

UNIT-II: DATA PREPROCESSING (K2) 15 hours

Data Preprocessing Overview – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Collection and Preprocessing-Types of Data-Computing Distance

(Self-Study : Types of Data)

UNIT-III:CLUSTER ANALYSIS (K2) 15 hours

Types of Cluster Analysis Method-Partitional Method-Hierarchical Method-Density Based Method.

UNIT- IV: CLASSIFICATION AND PREDICTION (K2) 15 hours

Introduction to classification-Decision Tree- Tree Pruning-Rule Extraction-Rule Induction-

Backpropogation-SVM.

UNIT-V:DATA WAREHOUSING (K2) **15 hours**

Introduction-Operational Data store-Data warehouse-Data warehouse and design-Data Warehouse Implementation -Warehouse Metadata.

TEXT BOOKS

1.Jiawei Han, Micheline Kamber, Jian Pei (2014). Data Mining Concepts and Techniques (3rd Edition). Elsevier Publication , India.

2. G.K.Gupta (2014)Introduction to Data Mining with Case Studies(3rd Edition),PHI Private Limited

REFERENCE BOOKS

1. Margaret H.Dunham (2008), Data Mining Introduction and Advanced Topics (8th Edition), Pearson Education, India.
2. Parteek Bhatia (2019), Data Mining and Data Warehousing: Principles and Practical Techniques, Cambridge University Press,India.
3. S.K Mourya,Shalu Gupta(2013), Data Mining and Warehousing, Alpha Science International Ltd.

BLENDED LEARNING:

UNIT	TOPICS	LINKS
V	Introduction-Operational Data store	https://www.youtube.com/watch?v=fQazhzcC-rg
V	Data warehouse	https://www.youtube.com/watch?v=AHR_7jFCMeY
V	Data warehouse and design	https://hevodata.com/learn/data-warehouse-design-a-comprehensive-guide/
V	Implementation	https://www.youtube.com/watch?v=StoWu2A8Ufs
V	Warehouse Metadata.	https://www.youtube.com/watch?v=GdiiIJvO0rM

MAPPING OF CO'S WITH POs AND PSOs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	2	-	-	3	3	3	3	3	3	2
CO2	3	3	2	3	2	-	2	2	-	3	3	3	3	2
CO3	3	3	-	3	2	3	3	3	3	3	-	2	-	3
CO4	3	3	3	-	2	-	-	2	3	3	3	2	2	-
CO5	3	2	3	-	2	3	2	2	-	3	3	3	3	-

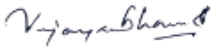
(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.NO	Assessment Methods	Frequency Of Assessment

1	End Semester Examination	Once in a semester
2	CIA I	Once in a semester
3	CIA II	Once in a semester
4	Model	Once in a semester
4	Assignment (Unit I and II)	Twice in a semester
6	Seminar (Unit III and IV)	Twice in a semester
7	Case Studies (Unit V)	Once in a semester

Course designed by : Ms. S.Pradeepa	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**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SEMESTER: VI

SUBJECT CODE: 23UCS6SB4

TITLE OF THE COURSE :SKILL BASED IV : CASE TOOLS AND BIOPERL

(Employability)

COURSE OBJECTIVE:

- To inculcate knowledge in UML diagrams and to write BIOPERL modules to manipulate DNA sequences.

COURSE OUTCOMES:

At the end of the course the students will be able to

CO1	Illustrate the fundamental concepts of Case Tools	**K1**
CO2	Implement simple programs by using Use case Diagrams	**K1**
CO3	Record: Implement the Program and print the Results	**K3**

Credits -2 **Instructional hours -45**

LIST OF PRACTICALS

CASE TOOLS:

1. Draw a DFD for Student Management System
2. Draw an ER Diagram for Employee Payroll System.
3. Design an Use case diagram for ATM System.
4. Design a Class diagram for Library Management System.
5. Design a Sequence diagram for Online Shopping.
6. Design a Activity diagram for E-ticketing.
7. Design a State Chart diagram for Online Course Registration System.
8. Design a Component diagram and Deployment diagram for Recruitment System.

BIOPERL:

1. Write a program to retrieve a protein sequence in fasta format from Swissprot database.
2. Write a program to retrieve a nucleotide sequence from Genbank database.
3. Write a program to translate a DNA sequence from Genbank to a protein sequence.

MAPPING OF CO'S WITH POs/PEOs

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**

CO1	2	2	1	2	2	3	1	2	2	1	3	1	1	2
CO2	1	1	3	2	1	3	2	1	1	2	2	2	1	2
CO3	2	3	3	1	2	1	2	2	2	3	1	2	1	3

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

S.No	**Assessment Methods**	**Frequency of Assessment**
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by :** **Principal**

				
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SEMESTER : V & VI

COURSE CODE :23UCSSB03

TITLE OF THE COURSE:INTER DISCIPLINARY SKILL BASED - WEB DESIGNING USING HTML

(Employability, Skill Development and Entrepreneurship)

COURSE OBJECTIVES

- To design web page using HTML tags.
- To have a deep knowledge in creating websites.

COURSE OUTCOMES:

At the end of the course, student will be able to

C01	Be acquainted with elements,Lists and basic structure of HTML files	K3
C02	Practice with Working with Tables	K3
C03	Record: Implement the Program and print the Results	K3

Credits -2 **Instructional hours: 45**

LIST OF PRACTICALS

1.Develop a HTML document for a web page for your favorite National Leader. Design the page with an attractive background color combination, with the moving title and horizontal rules.

2.Write a HTML document using Ordered List and Unordered List.

3.Write a HTML document using table tags to print your Bio-Data in table format.

4.Write a HTML document using table tags to print the Telephone Bill.

5.Write a HTML document using embed tags to view a movie created in movie maker

6.Write the Frameset tags and Frame tags for the following frameset.

7.Develop a complete web page using Frames and Frameset which gives the Information about Hospital.

<table>
<tr><td>Physics.html</td><td rowspan="2">Welcome.html</td><td rowspan="2">Maths.html</td></tr>
<tr><td>Chemistry.html</td></tr>
<tr><td>Botany.html</td><td rowspan="2">Heading.html</td><td>Account.html</td></tr>
<tr><td>Zoology.html</td><td>Computer.html</td></tr>
</table>

8.Write a HTML code for designing the subscription form of e-mail account with appropriate fields.

9.Design a web site for our college containing description of the courses offered provide suitable links, it should also contain some general information about the college such as its history, the

campus and its unique features. The pages should be colored and each section should have different color.

10. Create a web page with the following using HTML
    i. To embed an image map in a web page
    ii. To fix the hot spots
    iii. Show all the related information when the hot spots are clicked.

MAPPING OF CO'S WITH POs ANDPSOs

(Correlation: 3-High , 2-Medium , 1- Low)

ASSESSMENT TOOLS

Course designed by : Ms. M.Lincy Jacquline	**Verified by HOD : Ms. R.Uma Maheswari**
Checked by CDC : Dr.A.Jansi Rani	**Approved by : Principal**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	2

S.No	**Assessment Methods**	**Frequency of Assessment**
1	End Semester Examination	Once in a Semester
2	CIA I	Once in a Semester
3	CIA II	Once in a Semester
4	Record Note	Once in a Semester

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DEPARTMENT OF COMPUTER SCIENCE

VALUE ADDED COURSE 2024-2025

CONTENT DEVELOPMENT USING WORDPRESS

OBJECTIVES **INSTRUCTIONAL HOURS: 30 HOURS**

- To acquire knowledge on basic commands, equation generation, table creation and presentation preparation.

COURSE OUTCOME

At the end of the course the student will be able to

CO1	Interpret the working of basic command in Wordpress	**K3**
CO2	Identify the simple feature of presentation	**K3**
CO3	Record: Implement programs and present result	**K3**

PRACTICAL LIST

1. Create, edit and publish website content in WordPress
2. Create a Categories in WordPress
3. Create New Page, delete and edit the existing page in WordPress
4. How to Add a New Post in WordPress?
5. How to add files to the WordPress media library?
6. To Create Moderation of Comments in WordPress
7. To Create Theme Management in WordPress.

				
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