GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS), KUMBAKONAM

PG & Research Department of Computer Science

Programme : B.Sc., Computer Science

Programme Code : USCS

SYLLABUS

2023 – 2024 – I Year

2024 – 2025 – II Year

2025 – 2026 – III Year

Programme Outcomes :

The above expectations generally can be pooled into 6 broad categories and can be modified according to institutional requirements:

PO1: Knowledge
PO2: Problem Analysis
PO3: Design / Development of Solutions
PO4: Conduct investigations of complex problems
PO5: Modern tool usage
PO6: Applying to society

Programme Specific Outcomes

PSO1: Think in a critical and logical based manner

PSO2: Familiarize the students with suitable software tools of computer science and industrial applications to handle issues and solve problems in mathematics or statistics and real time application related sciences.

PSO3: Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.

PSO4: Understand, formulate, develop programming model with logical approaches to a Address issues arising in social science, business and other contexts.

PSO5: Acquire good knowledge and understanding to solve specific theoretical and applied problems in advanced areas of Computer science and Industrial statistics.

PSO6: Provide students/learners sufficient knowledge and skills enabling them to undertake further studies in Computer Science or Applications or Information Technology and its allied areas on multiple disciplines linked with Computer Science.

PSO7: Equip with Computer science technical ability, problem solving skills, creative talent and power of communication necessary for various forms of employment.

PSO8: Develop a range of generic skills helpful in employment, internships& societal activities.

PSO9: Get adequate exposure to global and local concerns that provides platform for further exploration into multi-dimensional aspects of computing sciences.

SEMESTER – I

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
I	LC – I	U231T1	Tamil	6	3
II	ELC - I	U231E1	English	6	3
III	CC – I	U23CSC101	Python Programming	5	5
III	CC-II	U23CSC102P	Python Programming Practical	3	2
III	GEC- I		Numerical Methods	6	5
IV	VE	U231VE	Value Education	2	2
IV	FC	U23CS1FC	Problem Solving Techniques	2	2
			Total	**30**	**22**

SEMESTER – II

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
I	LC – II	U232T2	Tamil	6	3
II	ELC –II	U232E2	English	6	3
III	CC – III	U23CSC203	Data Structures and Algorithms	5	5
III	CC-IV	U23CSC204P	Data Structures and Algorithms using C++ Practical	3	2
III	GEC-II		Operations Research	6	5
IV	SEC -I	U23CS2SE1	Fundamentals of Information Technology	2	2
IV	EVS	U232ES	Environmental Studies	2	2
			Total	**30**	**22**

SEMESTER – III

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
I	LC – III		Tamil	6	3
II	ELC - III		English	6	3
III	CC – V		Programming in Java	6	6
III	CC – VI		Programming in Java Practical	3	2
III	GEC -III		Applied Physics	4	4
III	GEC-IV		Applied Physics Practical	2	1
IV	SEC - II		Web Designing	1	1
IV	SEC - III		Multimedia Systems	2	2
			Total	**30**	**22**

SEMESTER – IV

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
I	LC – IV		Tamil	6	3
II	ELC - IV		English	6	3
III	CC – VII		Microprocessor and Microcontroller	5	5
III	CC -VIII		Microprocessor and Micro-Controller Practical	3	2
III	GEC – V		Applied Physics	4	4
III	GEC-VI		Applied Physics Practical	2	1
IV	SEC - IV		PHP Programming	2	2
IV	SEC - V		Multimedia Systems	2	2
			Total	**30**	**22**
			Internship/Industrial training*	**-**	**-**

* **Internship/industrial training during summer vacation. The credits shall be awarded in Semester V statement of marks.**

SEMESTER – V

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
III	CC – IX		Operating Systems	6	5
III	CC – X		Database Management System	6	5
III	CC – XI		Database Management System Practical	6	3
III	CC –XII		Project with Viva voce	3	3
III	DSE – I		1. Cloud Computing 2. Big Data Analytics	4	3
III	DSE - II		1. Software Engineering 2. Introduction to Data Science	4	3
IV	SEC -VI		Software Testing	2	2
IV	AEC - I		Internship / Industrial training	-	2
			Total	**30**	**26**

SEMESTER – VI

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits
III	CC – XIII		Computer Networks	5	5
III	CC – XIV		. NET Programming	5	5
III	CC – XV		.NET Programming Practical	6	3
III	DSE – III		1. Cryptography 2. Artificial Intelligence	5	4
III	DSE - IV		1. Computer Graphics 2. Robotics and its Applications	4	3
IV	SEC –VII		Bio Metrics	2	2
IV	AEC - II		Professional competency skill – General awareness for competitive examinations	2	2
IV	GS		Gender studies	1	1
	EA		Extension Activity	-	1
			Total	**30**	**26**

List of Discipline Specific Elective (DSE) Courses (2023 - 2024)

S.No	Subject Code	Title of the Paper	Credit
1.	U23CSDE1	Cloud Computing	3
2.	U23CSDE2	Big Data Analytics	3
3.	U23CSDE3	Software Engineering	3
4.	U23CSDE4	Introduction to Data Science	3
5.	U23CSDE5	Network Security	4
6.	U23CSDE6	Artificial Intelligence	4
7.	U23CSDE7	Computer Graphics	3
8.	U23CSDE8	Robotics and its Applications	3

Semester – I – Core Theory – CC-I

PYTHON PROGRAMMING

Subject Code U23CSC101	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
CC1	Python programming	Core	5	-	-	-	5	25	75	100

Learning Objectives	
LO1	To make students understand the concepts of Python programming.
LO2	To apply the OOPs concept in PYTHON programming.
LO3	To impart knowledge on demand and supply concepts
LO4	To make the students learn best practices in PYTHON programming
LO5	To know the costs and profit maximization

UNIT	Contents	No. of Hours
I	**Basics of Python Programming:** History of Python-Features of Python-Literal-Constants-Variables - Identifiers–Keywords-Built-in Data Types-Output Statements – Input Statements-Comments – Indentation- Operators-Expressions-Type conversions. **Python Arrays:** Defining and Processing Arrays – Array methods.	**15**
II	**Control Statements:** Selection/Conditional Branching statements: if, if-else, nested if and if-elif-else statements. Iterative Statements: while loop, for loop, else suite in loop and nested loops. **Jump Statements:** break, continue and pass statements**.**	**15**
III	**Functions:** Function Definition – Function Call – Variable Scope and its Lifetime-Return Statement. **Function Arguments**: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments- Recursion. **Python Strings:** String operations- Immutable Strings - Built-in String Methods and Functions - String Comparison. **Modules**: import statement- The Python module – dir() function – Modules and Namespace – Defining our own modules.	**15**
IV	**Lists:** Creating a list -Access values in List-Updating values in Lists-Nested lists -Basic list operations-List Methods. Tuples: Creating, Accessing, Updating and Deleting Elements in a tuple – Nested tuples– Difference between lists and tuples. **Dictionaries:** Creating, Accessing, Updating and Deleting Elements in a Dictionary – Dictionary Functions and Methods - Difference between Lists and Dictionaries.	**15**
V	**Python File Handling:** Types of files in Python - Opening and Closing files-Reading and Writing files: write() and writelines() methods- append() method – read() and readlines() methods – with keyword – Splitting words – File methods - File Positions-Renaming and deleting files.	**15**
	TOTAL HOURS	**75**

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Learn the basics of python, Do simple programs on python, Learn how to use an array.	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Develop program using selection statement, Work with Looping and jump statements, Do programs on Loops and jump statements.	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Concept of function, function arguments, Implementing the concept strings in various application, Significance of Modules, Work with functions, Strings and modules.	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Work with List, tuples and dictionary, Write program using list, tuples and dictionary.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Usage of File handlings in python, Concept of reading and writing files, Do programs using files.	PO1, PO2, PO3, PO4, PO5, PO6

Textbooks	
1	ReemaThareja, "Python Programming using problem solving approach", First Edition, 2017, Oxford University Press.
2	Dr. R. NageswaraRao, "Core Python Programming", First Edition, 2017, Dream tech Publishers.
Reference Books	
1.	VamsiKurama, "Python Programming: A Modern Approach", Pearson Education.
2.	Mark Lutz, "Learning Python", Orielly.
3.	Adam Stewarts, "Python Programming", Online.
4.	Fabio Nelli, "Python Data Analytics", APress.
5.	Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication.
Web Resources	
1.	https://www.programiz.com/python-programming
2.	https://www.guru99.com/python-tutorials.html
3.	https://www.w3schools.com/python/python_intro.asp
4.	https://www.geeksforgeeks.org/python-programming-language/
5.	https://en.wikipedia.org/wiki/Python_(programming_language)

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	3	2	3
CO 3	3	3	3	3	2	2
CO 4	3	3	3	3	2	3
CO 5	3	2	3	3	3	3
Weightage of course contributed to each PSO	15	14	15	15	13	14

S-Strong-3 M-Medium-2 L-Low-1

Semester – I – Core Practical – CC -II

PYTHON PROGRAMMING PRACTICAL

Subject Code U23CSC 102P	Subject Name	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
CC2	**Python Programming Practical**	**Core**	-	-	3	-	2	25	75	100

Learning Objectives	
LO1	Be able to design and program Python applications.
LO2	Be able to create loops and decision statements in Python.
LO3	Be able to work with functions and pass arguments in Python.
LO4	Be able to build and package Python modules for reusability.
LO5	Be able to read and write files in Python.

PRACTICAL EXERCISES	**Required Hours**
1. Program using variables, constants, I/O statements in Python. 2. Program using Operators in Python. 3. Program using Conditional Statements. 4. Program using Loops. 5. Program using Jump Statements. 6. Program using Functions. 7. Program using Recursion. 8. Program using Arrays. 9. Program using Strings.	**60**

10. Program using Modules. 11. Program using Lists. 12. Program using Tuples. 13. Program using Dictionaries. 14. Program for File Handling.	

Course Outcomes

On completion of this course, students will

CO1	Demonstrate the understanding of syntax and semantics of PYTHON language
CO2	Identify the problem and solve using PYTHON programming techniques.
CO3	Identify suitable programming constructs for problem solving.
CO4	Analyze various concepts of PYTHON language to solve the problem in an efficient way.
CO5	Develop a PYTHON program for a given problem and test for its correctness.

Mapping with Programme Outcomes:

CO/ PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	1	3	2	3
CO 3	3	3	3	3	2	2
CO 4	3	3	3	3	2	3
CO 5	3	2	3	3	3	3
Weightage of course contributed to each PSO	15	15	13	15	13	14

S-Strong-3 M-Medium-2 L-Low-1

Semester – I – Value Education – VE

விழுமிய கல்வி (VALUE EDUCATION)

Theory Hours : 2	Course Code : U231VE
Practical Hours : -	Credits : 2
Exam Hours : 3	Marks : CIA 40 ESE 60

Unit I – முன்னுரை : விழுமியக் கல்வி

1) வாழ்வியல் விழுமியங்கள்
2) விழுமியங்களின் வகைகள்
3) வாழ்வியல் விழுமியங்களை பாதிக்கும் காரணிகள்
4) விழுமியக் கல்வியின் அவசியம்

Unit II – நன்னடத்தைகள்

1) பெற்றோரை மதித்தல்
2) ஆசிரியரை மதித்தல்
3) இறை வழிபாடு
4) சுயமதிப்பு

Unit III – சமூகம் சார்ந்த மதிப்புகள்

1) ஒற்றுமை
2) சமத்துவம், சகோதரத்துவம்
3) குடும்பம்
4) குடிமக்களின் கடமைகள், தேசபக்தி

Unit IV – உடல் நலம் & மன வளம்

1) உணவு ஒழுக்கம்
2) தனி மனித சுகாதாரம்
3) மகளிர் ஆரோக்கியம்
4) எண்ணங்களின் வலிமை

Unit V – சீர்கேடுகளும், சீர்திருத்தங்களும்

சீர்கேடுகள் :

1) வாழ்க்கை விழுமியங்கள் மற்றும் அறங்களில் உலகமயமாதலின் பாதிப்பு
2) ஊடகங்களின் பாதிப்பு

சீர்திருத்தங்கள் :

1) மனக்கட்டுப்பாடு, விருப்பங்களை நெறிப்படுத்துதல்
2) உடற்பயிற்சி, தியானம், யோகா.

Question Paper Pattern

Section A - 5 x 15 = 75 (From each Unit from each 2 Question with Either OR type)

Semester – I – Foundation Course - FC

PROBLEM SOLVING TECHNIQUES

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks	
U23CS1FC									CIA	External
FC	Problem Solving Techniques	FC	2	-	-	-	2	2	25	75

Learning Objectives	
LO1	Familiarize with writing of algorithms, fundamentals of C and philosophy of problem solving.
LO2	Implement different programming constructs and decomposition of problems into functions.
LO3	Use data flow diagram, Pseudo code to implement solutions.
LO4	Define and use of arrays with simple applications
LO5	Understand about operating system and their uses

UNIT	Contents	Hours
I	**Introduction:** History, characteristics and limitations of Computer. Hardware/Anatomy of Computer: CPU, Memory, Secondary storage devices, Input Devices and Output devices. Types of Computers: PC, Workstation, Minicomputer, Main frame and Supercomputer. Software: System software and Application software. **Programming Languages:** Machine language, Assembly language, High-level language,4 GL and 5GL-Features of good programming language. Translators: Interpreters and Compilers.	6
II	**Data:** Data types, Input, Processing of data, Arithmetic Operators, Hierarchy of operations and Output. Different phases in Program Development Cycle (PDC).**Structured Programming: Algorithm:** Features of good algorithm, Benefits and drawbacks of algorithm. **Flowcharts:** Advantages and limitations of flowcharts, when to use flowcharts, flowchart symbols and types of flowcharts. **Pseudocode:** Writing a pseudocode. Coding, documenting and testing a program: Comment lines and types of errors. **Program design:** Modular Programming.	6
III	**Selection Structures:** Relational and Logical Operators -Selecting from Several Alternatives – Applications of Selection Structures. **Repetition Structures:** Counter Controlled Loops –Nested Loops– Applications of Repetition Structures.	6
IV	**Data:** Numeric Data and Character Based Data. **Arrays:** One Dimensional Array - Two Dimensional Arrays – Strings as Arrays of Characters.	6
V	**Data Flow Diagrams:** Definition, DFD symbols and types of DFDs. **Program Modules:** Subprograms-Value and Reference parameters-Scope of a variable - Functions – Recursion. **Files:** File Basics-Creating and reading a sequential file- Modifying Sequential Files.	6
	TOTAL HOURS	**30**

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
CO1	Study the basic knowledge of Computers. Analyze the programming languages.	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Study the data types and arithmetic operations. Know about the algorithms. Develop program using flow chart and pseudocode.	PO1, PO2, PO3, PO4, PO5, PO6

CO3	Determine the various operators. Explain about the structures. Illustrate the concept of Loops	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Study about Numeric data and character-based data. Analyze about Arrays.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Explain about DFD Illustrate program modules. Creating and reading Files	PO1, PO2, PO3, PO4, PO5, PO6

Textbooks	
1	**Stewart Venit,** "Introduction to Programming: Concepts and Design", Fourth Edition, 2010, Dream Tech Publishers.

Web Resources	
1.	https://www.codesansar.com/computer-basics/problem-solving-using-computer.htm
2.	http://www.nptel.iitm.ac.in/video.php?subjectId=106102067
3.	http://utubersity.com/?page_id=876

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	3	3	3
CO 4	3	3	2	3	3	3
CO 5	3	3	3	3	3	2
Weightage of course contributed to each PSO	15	14	14	15	15	14

S-Strong-3 M-Medium-2 L-Low-1

Semester II – Core Theory– CC - III

DATA STRUCTURES AND ALGORITHMS

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
U23CSC 203	**DATA STRUCTURES AND ALGORITHMS**	Core	5	-	-	-	5	5	25	75	100

Learning Objectives	
LO1	To understand the concepts of ADTs
LO2	To learn linear data structures-lists, stacks, queues
LO3	To learn Tree structures and application of trees
LO4	To learn graph structures and application of graphs
LO5	To understand various sorting and searching

UNIT	Contents	Hrs
I	Abstract Data Types (ADTs)- List ADT-array-based implementation-linked list implementation singly linked lists-circular linked lists-doubly-linked lists-applications of lists-Polynomial Manipulation- All operations-Insertion-Deletion-Merge-Traversal	15
II	Stack ADT-Operations- Applications- Evaluating arithmetic expressions – Conversion of infix to postfix expression-Queue ADT-Operations-Circular Queue-Priority Queue- deQueue applications of queues.	15
III	Tree ADT-tree traversals-Binary Tree ADT-expression trees-applications of trees-binary search tree ADT-Threaded Binary Trees-AVL Trees- B-Tree- B+ Tree – Heap-Applications of heap.	15

IV	Definition- Representation of Graph- Types of graph- Breadth first traversal – Depth first traversal- Topological sort- Bi-connectivity – Cut vertex- Euler circuits-Applications of graphs.	15
V	Searching- Linear search -Binary search-Sorting- Bubble sort-Selection sort-Insertion sort-Shell sort- Radix sort-Hashing-Hash functions-Separate chaining- Open Addressing-Rehashing Extendible Hashing	15
	Total	**75**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
CO1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation	PO1,PO6
CO2	Understand basic data structures such as arrays, linked lists, stacks and queues	PO2
CO3	Describe the hash function and concepts of collision and its resolution methods	PO2,PO4
CO4	Solve problem involving graphs, trees and heaps	PO4,PO6
CO5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	PO5,PO6

Text Book	
1	1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++", Pearson Education 2014, 4th Edition.
2	Reema Thareja, "Data Structures Using C", Oxford Universities Press 2014, 2nd Edition
Reference Books	
1.	Thomas H.Cormen, Chales E.Leiserson, Ronald L.Rivest, Clifford Stein, "Introduction to Algorithms", McGraw Hill 2009, 3rd Edition.
2.	Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education 2003

Web Resources	
1.	https://www.programiz.com/dsa
2.	https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/

Mapping with Programme Outcomes:

CO/PSO	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3	3	3	3	3	3
CO 2	3	3	1	3	3	3
CO 3	3	3	3	2	3	2
CO 4	3	2	3	2	3	3
CO 5	3	3	3	3	3	3
Weightage of course contributed to each PSO	15	14	13	13	15	14

S-Strong-3 M-Medium-2 L-Low-1

Semester II – Core Practical – CC -IV

DATA STRUCTURES AND ALGORITHMS PRACTICAL USING C++

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
U23CSC204P	**DATA STRUCTURES AND ALGORITHMS PRACTICAL USING C++**	Core	-	-	3	-	2	3	25	75	100

Learning Objectives	
LO1	To understand the concepts of ADTs
LO2	To learn linear data structures-lists, stacks, queues
LO3	To learn Tree structures and application of trees
LO4	To learn graph strutures and application of graphs
LO5	To understand various sorting and searching

Sl. No	Contents	Hours
1.	Write a program to implement the List ADT using arrays and linked lists.	60
2.	Write a programs to implement the following using a singly linked list. • Stack ADT • Queue ADT	
3.	Write a program that reads an infix expression, converts the expression to postfix form and then evaluates the postfix expression (use stack ADT).	
4.	Write a program to implement priority queue ADT.	
5.	Write a program to perform the following operations: • Insert an element into a binary search tree. • Delete an element from a binary search tree. • Search for a key element in a binary search tree.	
6.	Write a program to perform the following operations • Insertion into an AVL-tree • Deletion from an AVL-tree	
7.	Write a programs for the implementation of BFS and DFS for a given graph.	
8	Write a programs for implementing the following searching methods: • Linear search • Binary search.	
9.	Write a programs for implementing the following sorting methods: • Bubble sort • Selection sort • Insertion sort • Radix sort.	
	Total	**60**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation	PO1,PO4, PO5
2	Understand basic data structures such as arrays, linked lists, stacks and queues	PO1, PO4,PO6
3	Describe the hash function and concepts of collision and its resolution methods	PO1,PO3, PO6
4	Solve problem involving graphs, trees and heaps	PO3,PO4

5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	PO1,PO5, PO6
Text Book		
1	Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++", Pearson Education 2014, 4th Edition.	
2	ReemaThareja, "Data Structures Using C", Oxford Universities Press 2014, 2nd Edition	
Reference Books		
1	Thomas H.Cormen, Chales E.Leiserson, Ronald L.Rivest, Clifford Stein, "Introduction to Algorithms", McGraw Hill 2009, 3rd Edition	
2.	Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education 2003	
Web Resources		
1.	https://www.programiz.com/dsa	
2.	https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	1	3	2	3
CO 3	3	3	3	3	2	3
CO 4	3	3	3	3	2	3
CO 5	3	2	3	3	3	3
Weightage of course contributed to each PSO	15	15	13	15	13	15

S-Strong-3 M-Medium-2 L-Low-1

Semester – II – Skill Enhancement Course – SEC -1

FUNDAMENTALS OF INFORMATION TECHNOLOGY

Subject Code U23CS2SE1	Subject Name	Category	L	T	P	S	Inst. hours	Credits	Marks		
									CIA	External	Total
SEC3	**Fundamentals of Information Technology**	Skill Enha. Course (SEC)	2	-	-	-	2	2	25	75	100

Learning Objectives

LO1		Understand basic concepts and terminology of information technology.
LO2		Have a basic understanding of personal computers and their operation
LO3		Be able to identify data storage and its usage
LO4		Get great knowledge of software and its functionalities
LO5		Understand about operating system and their uses

UNIT		Contents	Hours
I		**Introduction to Computers:** Introduction, Definition, .Characteristics of computer, Evolution of Computer, Block Diagram Of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer	**6**
II		**Basic Computer Organization:** Role of I/O devices in a computer system. Input Units: Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, Output Units: Monitors and its types. Printers: Impact Printers and its types. Non Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.	**6**

III		**Storage Fundamentals:** Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives	**6**
IV		**Software:** Software and its needs, Types of S/W. System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. Application S/W and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w	**6**
V		**Operating System:** Functions, Measuring System Performance, Assemblers, Compilers and Interpreters. Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.	**6**
		TOTAL HOURS	**30**

	Course Outcomes	**Programme Outcomes**
CO	On completion of this course, students will	
CO1	Learn the basics of computer, Construct the structure of the required things in computer, learn how to use it.	PO1, PO2, PO3, PO4, PO5, PO6
CO2	Develop organizational structure using for the devices present currently under input or output unit.	PO1, PO2, PO3, PO4, PO5, PO6
CO3	Concept of storing data in computer using two header namely RAM and ROM with different types of ROM with advancement in storage basis.	PO1, PO2, PO3, PO4, PO5, PO6
CO4	Work with different software, Write program in the software and applications of software.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Usage of Operating system in information technology which really acts as a interpreter between software and hardware.	PO1, PO2, PO3, PO4, PO5, PO6

Textbooks		
1		Anoop Mathew, S. Kavitha Murugeshan (2009), " Fundamental of Information Technology", Majestic Books.
2		Alexis Leon, Mathews Leon," Fundamental of Information Technology", 2nd Edition.
3		S. K Bansal, "Fundamental of Information Technology".
Reference Books		
1.		Bhardwaj Sushil Puneet Kumar, "Fundamental of Information Technology"
2.		GG WILKINSON, "Fundamentals of Information Technology", Wiley-Blackwell
3.		A Ravichandran , "Fundamentals of Information Technology", Khanna Book Publishing
Web Resources		
1.		https://testbook.com/learn/computer-fundamentals
2.		https://www.tutorialsmate.com/2020/04/computer-fundamentals-tutorial.html
3.		https://www.javatpoint.com/computer-fundamentals-tutorial
4.		https://www.tutorialspoint.com/computer_fundamentals/index.htm
5.		https://www.nios.ac.in/media/documents/sec229new/Lesson1.pdf

Mapping with Programme Outcomes:

CO/PSO	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3	3	3	3	3	3
CO 2	3	3	3	3	3	3
CO 3	3	3	3	3	3	3
CO 4	3	3	3	3	2	3
CO 5	3	3	2	3	3	2
Weightage of course contributed to each PSO	15	15	14	15	14	14

S-Strong-3 M-Medium-2 L-Low-1