STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : **Computer Science**

Name/s of the Faculty : **Ms. Birunda Antoinette Mary, Ms. Jeyapriya U**

Course Title : **Procedure Oriented Programming with C**

Course Code : **23CS/MC/PO24**

Shift : **II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the concepts involved in structures, unions, pointers, file handling and preprocessing	K1
CO2	explain the acquired knowledge appropriately to a given problem	K2
CO3	choose appropriate data structures to solve any given problem	K3
CO4	analyze the different C concepts involved in designing a large program	K4
CO5	assess the issues, dependency and different methods to develop a better solution for any given problem	K5, K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	**1.1 Pointers** Pointers variable – Address of and	K1-K3	6	1-3	Lecture, Demonstration, Discussion	Practical Exercises on pointers

		Dereferencing operators – Declaring a pointer – Initializing a pointer - Pointers and Function Arguments					
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	Dynamic memory allocation – malloc, calloc, realloc and free - Pointers and Arrays - Address Arithmetic -	K1-K3	6	1-3	Lecture, Demonstration, Discussion, Case Analysis	Practical Exercises on Pointers, Implementing sorting and searching algorithms using pointers and arrays, dynamic memory allocation
Dec 4-11, 2024 (Day Order 1 to 6)	1	Character Pointers and Functions - Pointer Arrays - Pointers to Pointers - Initialization of Pointer Arrays - Pointers vs. Multi-dimensional Arrays - Pointers to Functions	K1-K3	6	1-3	Lecture, Demonstration, Code Review	Practical Exercises on pointers and Arrays, Programs to manipulate pointers using pointers and functions, pointers and arrays, Implementing stack and

							queue data structures, Debugging
Dec 12-19, 2024 (Day Order 1 to 6)	1	**1.2 String Concepts** String representation – Initialization - Length – Compare – Copy – Concatenate –Substring - Search – Replace – Conversion to int and vice versa **1.3 String built-in functions** strlen, strcmp, strcpy, strcat, strchr, strstr, atoi	K1-K3	6	1-3	Lecture, Demonstration, Discussion	Practical Exercises on Strings Component 1 Test – 20 marks – Finding the output, debugging, code review
Dec 20, 2024 (Day Order 1)	1	String built-in functions	K1-K3	1	1-3	Lecture	Quiz
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	**2.1 Structures and Unions** Defining a Structure - Declaring a structure variable - Member operator – Structures and Functions	K1-K5	4	1-5	Lecture, Demonstration, Discussion, Problem Solving	Practical Exercises on Structures
Jan 8 – 17, 2024 (Day Order 1 to 6)	2	Arrays of Structures - Pointers to Structures - Nested Structures - Arrow operator - Self-referential Structures	K1-K5	6	1-5	Lecture, Demonstration, Discussion	Practical Exercises on linked list data structure

		Typedef - Unions - Bit-fields					
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	3.1 Designing a Large Program Issues in developing a large program - Module & its Components (Header files, Object files & The process of linking) - Make utility – MakeFile structure (Rules, Targets, Prerequisites, Commands)	K1-K6	6	1-5	Lecture, Demonstration, Discussion, Code Review	Practical exercises on nested structures, structures and pointers, Unions
Feb 3-8, 2025 (Day Order 1 to 6)	3	Variables - Dependency Checking –Minimizing Rebuilds - Invoking Make – Basic Make syntax Storage classes – extern keyword in multiple files	K1-K6	6	1-5	Lecture, Demonstration, Discussion	Using gdb for large programs Component II – Project – Phase I - 15 marks – Implementation of a requirement using structures , pointers, arrays, user

							defined functions
Feb 10– 18, 2025 (Day Order 1 to 4)	4	**4.1 File I/O** File Pointers - Opening a file - Creating a file - Closing - Reading - Writing	K1-K5	4	1-5	Lecture, Demonstration, Discussion	Practical Exercise to create a file, perform copying
Feb 19- 26, 2025 (Day Order 1-6)	4	File Access (Sequential, Random) - Error Handling	K1-K5	6	1-5	Lecture, Demonstration, Discussion	Practical Exercises
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4	**4.2 Command Line Arguments**	K1-K5	6	1-5	Lecture, Demonstration, Discussion	Practical Exercises on merge and search operations using command line arguments Component III – Project – Phase II - 15 marks – Implementation phase I project using files

Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**5.1 Pre-processing File** Inclusion, Macro Substitution	K1-K2	3	1-2	Lecture, Demonstration, Discussion	Practical Exercises on Pre-processing
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	Conditional Compilation	K1-K2	3	1-2	Lecture, Demonstration, Discussion	Practical Exercises on Pre-processing
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Macros – Simple, Nested, Argumented	K1-K2	6	1-2	Lecture, Demonstration, Discussion	Practical Exercises on Pre-processing
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						

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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
COURSE PLAN
November 2024 – April 2025

Department : Computer Science
Name/s of the Faculty : Ms. Blessy Boaz, Ms. Nancy Arokia Rani S.
Course Title : Algorithms and Data Structures
Course Code : 23CS/MC/AD23
Shift : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the searching, sorting algorithms, List, Stack, Queue, Tree and Graphs	K1
CO2	explain the algorithms, data structures and hashing functions	K2
CO3	make use of the different data structures for a given problem	K3
CO4	analyse the searching, sorting algorithms and the data structures	K4
CO5	determine the data structure for a given application	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	**1.1 Introduction to Algorithms and Data Structures** Pseudo code, Algorithm - Characteristics (Finite steps,Unambiguous, Input, Output)-	K1-K4	4	CO1-4	Lecture	Brainstorming
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	Algorithm Notations - Efficiency of Algorithm- Role of Technology in Efficiency – Best, Average, Worse case-Asymptotic notations- Abstract Data Type	K1-K4	3	CO1-4	Lecture / Video demonstration	Quiz

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Dec 4-11, 2024 (Day Order 1 to 6)	1	Examples - Data Structure- Examples - Difference between ADT and Data Structures **1.2 Search Algorithms** Linear, Binary **1.3 Sorting Algorithms** Bubble Sort, Insertion Sort	K1-K4	4	CO1-4	Learning by Doing/ Simulation/ Demo	Case Study Discussion
Dec 12-19, 2024 (Day Order 1 to 6)	2	**2.1 List** ADT specification - Operations, Traversing, Searching , Insert, delete – Implementation – Array, Memory Allocation	K1-K5	4	CO1-5	Presentation / Lecture/ Demo	Quiz
Dec 20, 2024 (Day Order 1)	2	Linked List (Singly, Doubly, Circular, Header)	K1-K5	1	CO1-5	Quiz/ Learning by Doing	**Component 1: (25 marks)** **Conceptual Quiz on scenario-based questions and Algorithm Analysis.**

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	Case study of Lexicon using Linked List	K1-K5	3	CO1-5	Discussion / Case Analysis	Case Study
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	**3.1 Stack** ADT specification - Operations – Push, Pop, Implementation (Array)	K1-K5	4	CO1-5	Lecture/ Presentation/ demo	Quiz
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	Implementation (Linked List) – Applications- Infix to Postfix conversion, Postfix Evaluation, Recursion-QuickSort, Merge Sort	K1-K5	4	CO1-5	Lecture/ Learning by Doing/ Demo	Quiz

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Feb 3-8, 2025 (Day Order 1 to 6)	3	**3.2 Queue** ADT specification Operations- Enqueue, Dequeue, Implementation (Array, Linked List)	K1-K5	4	CO1-5	Lecture / video demonstration	Discussion
Feb 10– 18, 2025 (Day Order 1 to 4)	4	**4.1 Tree** Definition and Terms Binary Tree - Representation, Traversal, Searching - Binary Search Tree - Searching, Deleting and Inserting	K1-K5	3	CO1-5	Video Presentation/ Learning by Doing / Simulation	Quiz and Discussion

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Feb 19- 26, 2025 (Day Order 1-6)	4	Linked List Implementation of BST- Implementing a Lexicon using BST – Heap, Priority Queue ADT - Heap Property and Shape Property – Types of Heap (MinHeap, MaxHeap) – Build a heap – Operations (Insert, Delete) - Heap sort	K1-K5	4	CO1-5	Demo / Simulation/ Learning by Doing	Discussion
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	5	**5.1 Graph** Definition and Concepts - Representation of Graphs - Graph Traversals (Breadth First Search and Traversal, Depth First Search and Traversal) – Shortest Path algorithm (Dijkstra's algorithm)	K1-K5	4	CO1-5	Simulation/ Presentation/ Roleplay	**Component 2: (25 marks)** **Algorithmic Design for Real-Time Problems with Roleplay**

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**5.2 Hashing** Hash Table – Hash function - Properties of hash function	K1-K2	3	CO1-2	Lecture/ Learning by Doing/ Demo	Discussion and Problem solving
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	Collision – Collision Resolution (Open Addressing, Closed Addressing) – Case study of a Lexicon using Hash Table **5.3 Identifying data structures for real time applications**	K1-K2 K1-K5	3	CO1-2 CO1-5	Lecture/ Presentation/ Demo	Discussion
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Backlogs		4	CO1-5	Group Discussion/ Presentation	Quiz
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : **Computer Science**

Name/s of the Faculty : **Ms. Rajalakshmi S, Ms. Nandhini S**

Course Title : **Environmental Science**

Course Code : **23CS/GC/ES12**

Shift : **II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	articulate the interdisciplinary context of environmental issues	K1
CO2	understand sustainable alternatives that integrate science, humanities and social perspectives	K2
CO3	appreciate the importance of biodiversity and a balanced ecosystem	K3

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024	1	1.1 Introduction: The multidisciplinary nature	K1	2	CO1	Lecture	Discussion

(Day Order 1-6)		of environmental studies; Environmental Ethics- Role of the Individual in protecting the environment					
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	1.2 Natural Resources: renewable (forests and water) and non-renewable (minerals)- energy resources: renewable and non-renewable sources, impact of overexploitation	K1	2	CO1	Lecture	Discussion
Dec 4-11, 2024 (Day Order 1 to 6)	1	1.3 Ecosystems: terrestrial (forest, grassland and desert) and aquatic (ponds, oceans and estuaries); structure and function	K1	2	CO1	Lecture and Presentation	Quiz
Dec 12-19, 2024 (Day Order 1 to 6)	1	1.4 Biodiversity: India as a mega-diversity nation; threats to biodiversity; in-situ and ex-situ conservation of biodiversity	K1-K2	2	CO1-CO2	Lecture and Presentation	Discussion
Dec 20, 2024 (Day Order 1)		No Class		0			

Jan 3 – 7, 2025 (Day Order 3 to 6)	1	1.5 Solid Waste Management, Source Segregation and Rain Water Harvesting	K1-K3	2	CO1-CO3	Enacting of Skit	Group discussion
Jan 8 – 17, 2024 (Day Order 1 to 6)	2	2.1 Environmental Pollution: Air, Water, Noise and Plastic Pollution: causes, effects and control measures - Impact of over-population on pollution and health – carbon footprint	K1-K3	2	CO1-CO3	Innovative role play	Component I (25 marks) Objectives and Descriptive answers.
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	2	2.2 The Environmental Dimension of Sustainable Development: The United Nations Sustainable Development Goals of the 2030 Agenda	K1-K3	2	CO1-CO3	Lecture and Presentation	Questionnaire
Feb 3-8, 2025 (Day Order 1 to 6)	2	2.3 Climate Change and Environmental Disasters: Natural Disasters: floods, earthquakes, cyclones, tsunamis and landslides; man-made disasters: Bhopal Gas Tragedy and	K1-K3	2	CO1-CO3	Lecture/Video Presentation	Crossword

		Chernobyl Nuclear Disaster					
Feb 10– 18, 2025 (Day Order 1 to 4)	2	2.4 Environmental Movements: Chipko, Silent Valley and Narmada Bachao Andolan International Agreements: Montreal Protocol, Kyoto Protocol and Climate Change Conferences	K1-K3	1	CO1-CO3	Lecture/Video Presentation	Discussion
Feb 19- 26, 2025 (Day Order 1-6)	2	2.5 An Overview of Environmental Laws in India: Environmental (Protection) Act 1986, Biological Act, 2002, National Green Tribunal Act, 2010, Coastal Regulation Zone Notification, 2011	K1-K3	2	CO1-CO3	Lecture and Presentation	Component II (25 marks) Enacting the role play with innovative ideas for the topic given
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	3	3.1 A study of the eco-friendly initiatives on campus	K1-K3	2	CO1-CO3	Group Discussion and sharing of Experience	Case study on initiatives on campus
Mar 7 – 11, 2025 (Day Order 1 to 3)	3	3.2 A critical review of an environmental documentary film	K1-K3	1	CO1-CO3	Lecture/video Presentation	Discussion
Mar 12 –17, 2025	**C.A. Test - II**						

Mar 18 – 20, 2025 (Day 4 to 6)	3	3.3 Eco feminism and the contributions of Indian Women Environmentalists	K1-K3	1	CO1-CO3	Group Discussion and sharing of Experience	Discussion
Mar 21 - 28, 2025 (Day Order 1 to 6)	3	3.4 The highlights of Environmental Encyclical-Laudato si- On Care for our Common Home 3.5 Environmental Calendar	K1-K3	2	CO1-CO3	Lecture and Presentation	Discussion
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						

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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : Computer Science

Name/s of the Faculty : Ms. Madhura Prabha R

Course Title : Computer Fundamentals

Course Code : 23CS/GE/CF22

Shift : II

COURSE OUTCOMES (COs)

Cos	Description	CL
CO1	recall the various functional units of a computer	K1
CO2	explain post assembly operations and hardware problems	K2
CO3	choose an appropriate web tool to create and publish contents	K3

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	**1.1 Computer System** Hardware Introduction, Inside a computer Cabinet – Motherboard, BIOS, CMOS, Ports and Interfaces	K1-K2	2	CO1-2	Lecture and Presentation	Discussion
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	Expansion Slots, Ribbon Cables, Memory Chips, Storage devices	K1-K2	2	CO1-2	Lecture/ Analogy	Quiz

Dec 4-11, 2024 (Day Order 1 to 6)	1	Processor – Primary and Secondary Memory, Magnetic Disk, Hard Disk, Optical Disk, CD – ROM	K1-K2	2	CO1-2	Lecture Presentation Demo	Crossword
Dec 12-19, 2024 (Day Order 1 to 6)	1	**1.2 Plug and Play** Devices Mouse, Keyboard, Printer, Scanner	K1-K2	2	CO1-2	Lecture/ Video Demo	**Comp I:** Activity to Identify the different Hardware Components **Max. Marks:25**
Dec 20, 2024 (Day Order 1)	1	Webcam, Digital Devices, Microphone, External Harddrive.	K1-K2	1	CO1-2	Lecture/ Video Demo	Identification of hardware devices
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	**2.1 Post assembly operations in practice.** Partitioning of hard drive	K1-K2	1	CO1-2	Lecture/ Video Demo	Questionnaire
Jan 8 – 17, 2024 (Day Order 1 to 6)	2	Installation of Software, System and Application Software Antivirus, Ms Office Package, Installing updates from internet, Control panel features programs	K1-K2	2	CO1-2	Lecture and Presentation	Discussion
Jan 18 - 23, 2025	**C.A. Test – I**						

Jan 24 -31, 2025 (Day Order 1 to 6)	2	Manage user accounts, Network & Internet, Clock, Language and Region, Appearance and Personalization	K1-K2	2	CO1-2	Lecture and Presentation	Case analysis
Feb 3-8, 2025 (Day Order 1 to 6)	2	System and Security, Hardware and Sound	K1-K2	2	CO1-2	Lecture/ Video Demo	Assignment on different security methods
Feb 10– 18, 2025 (Day Order 1 to 4)	2	**2.2 Trouble shooting Hardware Problems** Approach towards hardware problems, Trouble Shooting, Motherboard, Processing, RAM, Harddrive	K1-K2	2	CO1-2	Lecture/ Video Demo	Problem Identification
Feb 19- 26, 2025 (Day Order 1-6)	2	I/O Devices, Keyboards, Monitors and Video cards	K1-K2	2	CO1-2	Lecture/ Video Demo	Group activity
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	3	**3.1 Web Tools** The Read / Write web, Weblogs, Pedagogy and Practice	K1-K3	2	CO1-3	Lecture Presentation Demo	Presentation
Mar 7 – 11, 2025 (Day Order 1 to 3)	3	Easy Collaboration for all , Flickr, Creating, Publishing and using images online	K1-K3	2	CO1-3	Lecture Presentation Demo	**Comp II:** Activity based on exploring various Web Tools

							Max. Marks:25
Mar 12 –17, 2025	**C.A. Test – II**						
Mar 18 – 20, 2025 (Day 4 to 6)	3	Podcasting, Video and Screen casting, Multimedia and Publishing for the masses	K1-K3	1	CO1-3	Lecture/Demo	Creating videos
Mar 21 - 28, 2025 (Day Order 1 to 6)	3	**3.2 Ways to improve one's digital life** Functionality and Security	K1-K3	2	CO1-3	Lecture / Presentation	Discussion
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						