STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department	: Computer Science
Name/s of the Faculty	: Dr. I. Diana Judith, Ms. Geethanjali S.
Course Title	: Operating Systems
Course Code	: 23CS/MC/OS45
Shift	: II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the components, structure and services of Operating System	K1
CO2	explain the concepts involved in the process, threads and memory	K2
CO3	apply the acquired knowledge appropriately in Operating System K3 Components	K3
CO4	examine the issues involved in different Operating System concepts	K4
CO5	decide the strategies to overcome the issues and challenges in K5 Operating System Components	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** Computer System Organisation – Computer	K1 – K2	5	1 – 2	Lecture / Group discussions	Quiz

		System Architecture – Operating System - Structure, Operations – Process Management – Memory Management					
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	Storage Management - Protection and Security – Kernel Data Structures **1.2 Operating System Structures** Operating System Services – System Calls	K1 – K2	5	1 – 2	Lecture / Presentation / Group discussions	Quiz
Dec 4-11, 2024 (Day Order 1 to 6)	1, 2	System Programs – Operating System Design and Implementation - Operating System Structure –System Boot **2.1 Processes** Process Concept	K1 – K2 K1 – K5	5	1 – 2 1 – 5	Lecture / Presentations	Crossword puzzle
Dec 12-19, 2024 (Day Order 1 to 6)	2	Process Scheduling – Operations on Processes – Interprocess Communication **2.2 Process Synchronisation** Background – Critical-Section Problem	K1 – K5	5	1 – 5	Lecture / Demo / Experiential lab practice	**Component 1:** MCQs (Max. marks – 25)

Date		Topic				Method	
Dec 20, 2024 (Day Order 1)	2	Peterson's Solution	K1 – K5	1	1 – 5	Lecture / Demo / Group discussions	Discussion
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	Synchronisation Hardware – Semaphores – Classic problems of Synchronisation – Monitors	K1 – K5	4	1 – 5	Lecture / Presentations	Discussion
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	**3.1 CPU Scheduling** Basic Concepts – Scheduling Criteria – Scheduling Algorithms	K1 – K5	5	1 – 5	Lecture / Demo / Problem based learning	Problem solving
		3.2 Threads Overview – Multithreading models – Threading issues	K1 – K2		1 – 2		
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	**3.3 Deadlocks** System Model – Deadlock Characterisation – Methods for handling Deadlocks - Deadlock Prevention	K1 – K5	5	1 – 5	Lecture / Presentations	Quiz
Feb 3-8, 2025 (Day Order 1 to 6)	3, 4	Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock	K1 – K5	5	1 – 5	Lecture / Problem based learning	Problem solving

		4.1 Main Memory Background – Swapping – Contiguous Memory allocation	K1 – K3		1 – 3		
Feb 10– 18, 2025 (Day Order 1 to 4)	4	Paging – Structure of Page Table	K1 – K3	3	1 – 3	Lecture / Demo / Group discussions	Crossword puzzle
Feb 19- 26, 2025 (Day Order 1-6)	4	4.2 Virtual Memory Background – Demand Paging – Copy on Write – Page Replacement – Thrashing	K1 – K5	5	1 – 5	Lecture / Demo / Group discussions / Problem based learning	Component 2: Problem Solving based on Banker's algorithm and page replacement algorithms (Max. marks – 25)
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	5	5.1 Secondary Storage Structure Overview of Mass Storage Structure – Disk Structure – Disk Attachment – Disk Management – Swap Space Management – RAID Structure	K1 – K3	5	1 – 3	Lecture / Group discussions	Quiz

Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**5.2 Disk Scheduling**	K1 – K5	2	1 – 5	Lecture / Presentation / Problem based learning	Problem solving
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	**5.3 File Management** File System – File Concepts – Access Methods	K1 – K3	3	1 – 3	Lecture / Case study analysis	Crossword puzzle
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Directory Structures **5.4 File System Implementation** File System Structures – Allocation Methods – Free Space Management	K1 – K3	5	1 – 3	Lecture / Case study analysis	Quiz
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. Roselin Clara A, Dr. Faustina Joan S P
Course Title	: Web Programming
Course Code	: 23CS/MC/WP45
Shift	: II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall the concepts of web development with HTML5, CSS, JavaScript and PHP	K1
CO2	learn and design a webpage with different elements using the learnt web technologies	K2
CO3	apply the knowledge and design a webpage with different web elements	K3
CO4	explain and infer the use of HTML5, CSS, JavaScript and PHP in creating and designing interactive dynamic websites	K4
CO5	develop a dynamic responsive website with interactivity and server-side functionality	K5, K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1 to 6)	1	**1.1 Introduction to HTML and HTML5** Introduction to Web Design – Design Principles – Working of the Web – Creating a Simple Page – Paragraphs, Headings, hr Element, Lists, More Content Elements, Organising Page Content – Inline Elements – Generic Elements – Escape Characters	K1 – K6	5	1 – 5	Demo / Presentation / Analogy	Practical Exercises
Nov 26 – Dec 3, 2024 (Day Order 1 to 6)	1	**1.1 Introduction to HTML and HTML5** href attribute – Linking Pages on the Web, Linking Within Own Site – Targeting Link to New Browser Window Image Formats – img Element **1.2 Tables, Forms, Media** Table Structure – Table Headers – Spanning Cells – Table	K1 – K6	5	1 – 5	Lecture / Demo / Learning by Doing	Quiz

		Accessibility – Row and Column Groups – form Element – Attributes – Controls – Form Accessibility					
Dec 4 – 11, 2024 (Day Order 1 to 6)	1, 2	**1.2 Tables, Forms, Media** Embedded Media – iframe, object, embed, video, audio Elements **2.1 Introduction to CSS** Benefits of CSS – How CSS Works – CSS Concepts – CSS Units – Basic Font Properties – Changing Text Color – Text Line Adjustments	K1 – K6	5	1 – 5	Demo / Presentation / Analogy	Component 1 (25 marks) – MCQs Debugging Fill in the missing code
Dec 12 – 19, 2024 (Day Order 1 to 6)	2	Specifying Color Values – Foreground & Background Color – Pseudo-Class Selectors – Background Images **2.2 Advanced CSS** CSS Box Model – Element box, Box Dimensions, Padding, Borders, Margins, Display Types	K1 – K6	5	1 – 5	Lecture / Demo / Learning by Doing	Activity – Creating a blog post or a simple article on a web programming topic
Dec 20, 2024	2	**2.2 Advanced CSS**	K1 – K6	1	1 – 5	Demo / Presentation	Practical Exercises

(Day Order 1)		Normal Flow – Floating – Positioning –					
Jan 3 – 7, 2025 (Day Order 3 to 6)	2, 3	Responsive Web Design (RWD) – Viewport – Responsive Images – Media Query – Breakpoints **3.1 Introduction to JavaScript** Exploring JavaScript	K1 – K6	4	1 – 5	Demo / Presentation	Practical Exercises
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	**3.1 Introduction to JavaScript** Variables, Operators, Variable Typing, Functions, Global and Local Variables – Document Object Model – Display Methods – Expressions – Conditionals – Looping	K1 – K6	5	1 – 5	Demo / Presentation	Practical Exercises
Jan 18 – 23, 2025	**C.A. Test - I**						
Jan 24 – 31, 2025 (Day Order 1 to 6)	3	**3.2 Exploring JavaScript** JavaScript Functions – Objects – Arrays – Form Validation using DOM Constraints – Accessing CSS from JavaScript – Event Handling –	K1 – K6	5	1 – 5	Demo / Presentation / Learning by Doing	Activity – Creating a concept map visually representing the key topics of the subject

		Validating User Input with JavaScript, Regular Expressions					
Feb 3 – 8, 2025 (Day Order 1 to 6)	3	**3.3 jQuery** Including jQuery, Syntax, Selectors, Handling Events, ready() function, Event functions and properties – blur(), focus(), this keyword, click(), dblclick(), keypress()	K1 – K6	5	1 – 5	Demo / Presentation	Practical Exercises
Feb 10– 18, 2025 (Day Order 1 to 4)	4	**4.1 Introduction to PHP** Setting up the Development Server – PHP Within HTML – Basic Constructs	K1 – K6	3	1 – 5	Demo / Presentation / Analogy	Component 2 (25 marks) – Two-mark questions and simple code snippets
Feb 19 – 26, 2025 (Day Order 1 to 6)	4	**4.2 Forms, Cookies and Sessions in PHP** Form Handling using PHP – GET and POST	K1 – K6	5	1 – 5	Demo / Case Analysis	Activity – Identifying websites with design and coding errors
Feb 27 – Mar 6, 2025 (Day Order 1 to 6)	4	**4.2 Forms, Cookies and Sessions in PHP** Validating Form using PHP – Cookies – Sessions	K1 – K6	5	1 – 5	Demo / Presentation	Practical Exercises
Mar 7 – 11, 2025	5	**5.1 MySQL with PHP** MySQL Basics	K1 – K6	2	1 – 5	Demo / Learning by Doing	Debugging

(Day Order 1 to 3)						
Mar 12 – 17, 2025	C.A. Test - II					
Mar 18 – 20, 2025 (Day Order 4 to 6)	5	**5.1 MySQL with PHP** Querying a MySQL Database with PHP – Practical MySQL	K1 – K6	2	1 – 5	Demo / Presentation	Practical Exercises
Mar 21 – 28, 2025 (Day Order 1 to 6)	5	**5.1 MySQL with PHP** Creating a Table – Describing a Table – Dropping a Table – Adding Data – Retrieving Data – Updating Data – Deleting Data – Using AUTO_INCREMENT	K1 – K6	5	1 – 5	Demo / Presentation	Practical Exercises
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 : Dr. I. Diana Judith, Ms. Geethanjali S.

Course Title : Operating Systems Practical

Course Code : 23CS/MC/P242

Shift : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	tools available in Linux to monitor running processes, adjust process and priorities	K1, K2
CO2	differentiate between foreground and background processes, user time and system time taken by a program	K3
CO3	explain how file security model works in a multiuser environment, virtual memory map of a program	K4
CO4	elaborate the concepts of user and storage device management	K5
CO5	discuss how a process is created and terminate a process, and operations performed on files	K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	**Introduction** Referring to man pages using command man; Identify machine architecture using command uname **Users and groups** Create a group using groupadd command; Create a user using useradd command; Change the password for a user; Change to different user using su command	K1 – K5	4	1 - 4	Group discussions / Demonstration	Quiz
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	2	**Processes** View the current list of processes using command ps command - Identify the option that will help you to see the command used to start the process -Identify the option that will help you to see the state of each process -List the various states of a Linux process	K1 – K6	4	1 – 5	Group discussions / Demonstration	MCQ tests

Dec 4-11, 2024 (Day Order 1 to 6)	2	**Kill command** Number of signals that are supported in Linux -Forcefully terminate a process using command kill -Identify the signal passed to a program when Ctrl + C is pressed -Identify the real and effective UIDs of a process using command "$ cat /proc/<pid>/status" -View the process tree using the command pstree. Trace the parent process of all processes.	K1 – K6	4	1 – 5	Group discussions / Demonstration	Testing through practical exercises
Dec 12-19, 2024 (Day Order 1 to 6)	2	**Process Scheduling** Change the priority of a process using nice command -View the nice value of processes using ps command -Write a C program to simulate stack overflow error. -Control stack size using command ulimit.	K1 – K6	4	1 – 5	Group discussions / Demonstration	Quiz

Dec 20, 2024 (Day Order 1)	2	Write a C program to create a new process using a system call fork.	K1 – K6	1	1 – 5	Group discussions / Demonstration / Discussing project ideas	Testing through practical exercises
Jan 3 – 7, 2025 (Day Order 3 to 6)	3	**Files and Directories** List the files in the current directory using command ls; Print the current working directory using command pwd; Create a directory using command mkdir; Change to the given directory using command cd; Remove a file using command rm; Remove a directory using command rmdir	K1 – K6	3	1 – 5	Group discussions / Demonstration / Discussing project ideas	**Component 1:** Coding challenge (Max. marks – 25)
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	Copy a file using command cp; Move a file using command mv; Identify the attributes of a file using command stat; Change the ownership of a file using command chown; Change file permissions using command chmod; Using the shell built-in umask to control the permissions of a new file	K1 – K6	4	1 – 5	Group discussions / Demonstration	Mapping commands and options through match cards

Jan 18 - 23, 2025			C.A. Test - I					
Jan 24 -31, 2025 (Day Order 1 to 6)	3	**Memory management** Study the given C program. Identify the virtual memory regions used by the program. Find the shared library dependencies of an executable using command ldd	K1 – K6	4	1 – 5	Group discussions / Demonstration	Discussion
Feb 3-8, 2025 (Day Order 1 to 6)	3 4	**Time** Determine the amount of time taken by a program using command time. Difference between real time, user time and system time **Shell** Identify user's shell using the command "echo $SHELL"	K1 – K6	4	1 – 5	Group discussions / Demonstration	Testing through practical exercises
Feb 10– 18, 2025 (Day Order 1 to 4)	4	-Write a C program to display the environment variables available to it. -Push a foreground process to the background -View the list of processes started from	K1 – K6	4	1 – 5	Group discussions / Demonstration / Discussing project ideas	Testing through practical exercises

		prompt using command jobs -Bring a background process to the foreground					
Feb 19- 26, 2025 (Day Order 1-6)	4	**System Calls** Inspect the system calls made by a program using command strace Using command "man syscalls", check the list of system calls supported by Linux.	K1 – K6	4	1 – 5	Group discussions / Demonstration	**Component 2:** Mini project (Max. marks – 25)
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4	Write a C program named copy.c that uses the system calls open, read, write, and close to copy a file to another file.	K1 – K6	4	1 – 5	Group discussions / Demonstration	Discussion
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**Interprocess Communication** Feed the output of a program as input to another program using a pipe Ex: "$ ls | wc -l"	K1 – K5	2	1 – 4	Group discussions / Demonstration	Mapping commands and options through match cards
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	**File Systems**	K1 – K5	2	1 – 4	Group discussions / Demonstration	Testing through

		View the file systems currently mounted using command mount					practical exercises
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Mount a file system using command mount Unmount a file system using command umount Examine the file /etc/fstab. Identify the role of the entries in this file	K1 – K5	4	1 – 4	Group discussions / Demonstration	Testing through practical exercises
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. Roselin Clara A, Dr. Faustina Joan S P

Course Title   : Web Programming Practical

Course Code   : 23CS/MC/P342

Shift   : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	explain the web designing principles and concepts of web technology	K1, K2
CO2	apply the principles and techniques to design an interactive web page	K3
CO3	analyse the client side and server-side programming language used to create the web application	K4
CO4	evaluate the responsiveness of web application in multiple devices	K5
CO5	create a web application using HTML5, CSS, JavaScript and PHP with MySQL	K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1 to 6)	1, 2	1. Using HTML features - standard tags, fonts, headings, paragraphs, formatting, list, anchor tags, image linking and multimedia	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Nov 26 – Dec 3, 2024 (Day Order 1 to 6)	1, 2	2. Designing a web page with focus on tables and layers 3. Designing a web page with focus on forms and hands-on experience on different page	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Dec 4 – 11, 2024 (Day Order 1 to 6)	1, 2	4. Layouts, web pages with interactivity 5. Exercises on semantic tags, navigations, CSS	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Dec 12 – 19, 2024 (Day Order 1 to 6)	1, 2	6. Exercise a building a Multilingual Web page	K1 – K6	4	1 – 5	Demo / Presentation / Project	Component 1 (25 marks) – Phase 1 of Mini Project: Website Title, Layouts, Wireframing

Date		Exercise					
Dec 20, 2024 (Day Order 1)	1, 2	6. Exercise a building a Multilingual Web page	K1 – K6	1	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Jan 3 – 7, 2025 (Day Order 3 to 6)	1, 2	7. Exercise on RWD using GridView and media queries	K1 – K6	2	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	8. Programs using operators and control statements 9. Implementing text, number, date and email id validations using DOM constraint AP	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Jan 18 – 23, 2025	**C.A. Test - I**						
Jan 24 – 31, 2025 (Day Order 1 to 6)	3	10. Exercises on events 11. Using arrays	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Feb 3 – 8, 2025 (Day Order 1 to 6)	3	12. Processing inputs and displaying messages incorporating system time 13. Programs implementing JavaScript objects 14. Programs to handle exceptions	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises

Date		Topic				Method	Assessment
Feb 10 – 18, 2025 (Day Order 1 to 4)	4	15. Using PHP functions, operators and arrays	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Feb 19 – 26, 2025 (Day Order 1 to 6)	5	16. Implementing get and post method	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Feb 27 – Mar 6, 2025 (Day Order 1 to 6)	5	17. Using PHP scripts and database - store, retrieve, update and search	K1 – K6	4	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	18. Using cookies and session	K1 – K6	1	1 – 5	Demo / Presentation / Learning by Doing	Practical Exercises
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day Order 4 to 6)		Mini Project	K1 – K6	2	1 – 5	Demo / Presentation / Project	Component 2 (25 marks) – Phase 2 of Mini Project: Completion of the website
Mar 21 – 28, 2025 (Day Order 1 to 6)		Mini Project	K1 – K6	4	1 – 5	Demo / Presentation / Project	Practical Exercises
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. Rajalakshmi S**
Course Title	**: Internet of Things**
Course Code	**: 23CS/ME/IT45**
Shift	**: II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	define the fundamental concepts of IoT	**K1**
CO2	classify the framework involved in IoT and its governance	**K2**
CO3	apply the scope of different standards and protocols	**K3**
CO4	examine the core concepts of IoT and its working mechanisms	**K4**
CO5	interpret the perspective of having a reliable and secure IoT models	**K5**
	CL – Cognitive Level **K1 – Remember | K2 – Understand | K3 – Apply | K4 – Analyse | K5 – Evaluate | K6 - Create**	

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 IoT Ecosystem Concepts and Architectures** Introduction - IoT definition and evolution – IoT Architectures - OpenIoT Architecture for IoT/Cloud Convergence	K1 – K3	6	1 - 3	Lecture / Presentation	Activity - Quiz
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	- Resource Management - IoT Data Management and Analytics - Communication Protocols – Internet of Things applications	K1 – K3	6	1 - 3	Lecture / Presentation	Discussion
Dec 4-11, 2024 (Day Order 1 to 6)	1	**1.2 Scheduling Process and IoT Services** Lifecycle - IoT enabling technologies – IoT levels and Deployments templates - Introduction to M2M - Difference between IoT and M2M – SDN and NFV for IoT	K1 – K3	6	1 - 3	Lecture , Roleplay	Quiz

Dec 12-19, 2024 (Day Order 1 to 6)	2	**2.1 IoT Data and Framework Essentials** Introduction - Programming framework for IoT- The foundation of Stream processing in IoT	K1 – K3	6	1 - 3	Lecture – Presentation / Roleplay	Discussion
Dec 20, 2024 (Day Order 1)	2	Continuous Logic processing system	K1 – K3	1	1 - 3	Lecture - Presentation	Quiz
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	- Challenges and Future directions - Anomaly detection	K1 – K3	3	1 - 3	Lecture - Presentation	Component 1 – Objective questions (25 marks)
Jan 8 – 17, 2024 (Day Order 1 to 6)	2	- Problem statement and definitions - Efficient incremental local modelling - IoT Governance	K1 – K3	6	1 - 3	Lecture – Presentation / Role Play	Discussion
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	**3.1 RF Protocols** RFID, NFC;IEEE 802.15.4: ZigBee - ZWAVE, THREAD - Bluetooth Low Energy (BLE) - IPv6 for Low Power and Lossy Networks (6LoWPAN)	K1 – K5	6	1 - 5	Lecture - Presentation	Role play

Feb 3-8, 2025 (Day Order 1 to 6)	3	Routing Protocol for Low power and lossy networks (RPL) - CoAP - XMPP - Web Socket- AMQP - MQTT - WebRTC - PUSH Architectural Considerations in Smart Object Networking - TinyTO Protocol	K1 – K5	6	1 - 5	Lecture – Analogy / Presentation	Discussion
Feb 10– 18, 2025 (Day Order 1 to 4)	3	**3.2 Introduction to IoT based applications** Scenarios - Architecture overview - Sensors - The gateway Data Transmission - Internet of Vehicles (IoV) – IoV Characteristics, technologies and its application	K1 – K5	4	1 - 5	Lecture – Presentation / Demo on Sensors	Quiz
Feb 19- 26, 2025 (Day Order 1-6)	4	**4.1 Developing Internet of Things** Introduction-IoT Design Methodology - - Case study on IoT system for Weather monitoring - IoT Device - IoT physical devices and endpoints - Exemplary Device: Raspberry Pi - Raspberry Pi interfaces	K1 – K5	6	1 - 5	Lecture , Learning by doing / Presentation	Discussion

Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4 5	Programming Raspberry Pi and with python - Other IoT devices **5.1 IoT Reliability, Security and Privacy** Introduction - Concepts - IoT Security Overview - Security K1-K5 15 Frameworks for IoT	K1 – K5	6	1 - 5	Lecture, Simulation	Component 2: Presentation on Case Study of latest IoT System (25 marks)
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	Privacy in IoT networks - IoT characteristics and reliability issues -	K1 – K5	3	1-5	Lecture - Presentation	Quiz
Mar 12 –17, 2025	**C.A. Test - II**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	Addressing reliability - Error detections - Fault Preventions	K1 – K5	3	1 - 5	Lecture - Presentation	Discussion
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Case studies illustrating IoT Design	K1 – K5	6	1 - 5	Lecture , Demos	Quiz
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. Nancy Arokia Rani S.
Course Title   : Advanced Java Programming
Course Code   : 23CS/ME/AJ45
Shift   : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall and relate the core concepts of web application development	K1
CO2	explain the different applications using javafx, servlet, jsp and database connectivity	K2
CO3	apply the knowledge to build a window/web application	K3
CO4	analyse and differentiate between window and web application with backend	K4
CO5	develop an interactive window/web application	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	**Unit 1** **1.1 Basics of XML** Need for XML - Well Formed XML Documents - Validating an XML Document using XML Schema	K1-K6	6	CO1-5	Lecture	Brainstorming
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	**1.2 Database Connectivity** JDBC Database Connectivity - Types of JDBC drivers Establishing a Connection -Executing Statements - Prepared statements	K1-K6	6	CO1-5	Lecture / video demonstration	Practical Exercises on JDBC

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Dec 4-11, 2024 (Day Order 1 to 6)	1	Callable statements - Mapping SQL types to Java- ResultSetMetadata	K1-K6	6	CO1-5	Lecture / video demonstration	Quiz
	2	**Unit 2** **2.1 JavaFX Basics** What is JavaFX - JavaFX Application Life Cycle, Defining the Main Window by using the Stage class, Key JavaFX packages					
Dec 12-19, 2024 (Day Order 1 to 6)	2	**2.2 Scene Graph** Using and Integrating Scene graph in JavaFX Application - Scene Class – Event Handling - Node Types - Primitive Nodes, LayoutPanes, Complex Nodes – Node Basics - Image and ImageView	K1-K6	6	CO1-5	Learning by Doing/ Simulation/ Demo	Practical Exercises on Window-based application using JavaFX
Dec 20, 2024 (Day Order 1)	2	**2.3 Layouts and JavaFX Basic Controls** HBox - VBox - StackPane - FlowPane - GridPane	K1-K6	2	CO1-5	Lecture/ Presentation/ demo	Discussion

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	BorderPane Control Class - Basic Controls -Labeled Controls, Controls for Text Input, ProgressIndicator and ProgressBar - Tooltip of a Control - Menus - ToolBar - Separators	K1-K6	4	CO1-5	Demo / Quiz/ Lecture	**Component 1: (25 marks)** **Conceptual Quiz on scenario-based questions, Code Snippet and Debugging.**
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	**Unit 3** **3.1 Additional JavaFX Controls** Controls with a Data Model - ComboBox, ListView, TableView, TreeView – Controls that act as Containers – Canvas	K1-K6	6	CO1-5	Lecture/ Learning by Doing/ Demo	Practical Exercises on JavaFX Controls
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	**3.2 Styling a Control** CSS Basics - CSS in JavaFX - Using Selectors	K1-K6	6	CO1-5	Lecture/ Demo	Practical Exercises

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Feb 3-8, 2025 (Day Order 1 to 6)	3	**3.3 Introduction to HTTP** HTTP Protocol - HTTP Request, Get, Post, HTTP Response, HTTP Response codes - Client side and Server side programming	K1-K6	6	CO1-5	Lecture / video demonstration	Discussion
Feb 10– 18, 2025 (Day Order 1 to 4)	4	**Unit 4** **4.1 Web Applications** Web Applications and Web Containers - Web components - Web Application Life Cycle - Creating, Building and Deploying - Web Archive Structure	K1-K6	4	CO1-5	Demo / Simulation/ Learning by Doing	Quiz and Discussion
Feb 19- 26, 2025 (Day Order 1-6)	4	**4.2 Servlet Technology** Need for Servlets - Characteristics of Servlets	K1-K6	6	CO1-5	Demo / Learning by Doing	Practical Exercises on Web application using Servlet

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4	Comparison between Servlets and other Server side scripting languages - Working of Servlet - javax.servlet package - Life Cycle of Servlet - Session - Interservlet communication – Request Dispatcher Interface	K1-K6	6	CO1-5	Presentation/ Learning by Doing/ Project	**Component 2: (25 marks)** **Project on Window or Web application with DB Conn**
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**Unit 5** **5.1 Java Server Pages** Introduction – Comparison between JSP and Servlets	K1-K6	3	CO1-5	Lecture/ Demo	Practical Exercises on creating a web app using JSP
Mar 12 –17, 2025		C.A. Test - II					
Mar 18 – 20, 2025 (Day 4 to 6)	5	Life Cycle – Structure – Components - JSP Tags - JSP Session - Cookie – Static content	K1-K6	4	CO1-5	Video Presentation/ Learning by Doing	Practical Exercises on creating a web app using JSP

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	Dynamic content - Scripting Elements	K1-K6	6	CO1-5	Lecture/ Learning by Doing/ Demo	Practical Exercises on creating a web app using JSP and State Management
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						