Timetable

Instructors and Students Information

Module 1: Computing Fundamentals (2 Weeks)

Week	Day	Time	Topics	Activities/Hands-On
1	**Monday**	9:00 AM - 12:00 PM	Introduction to Computers	Overview of computer hardware components.
		2:00 PM - 5:00 PM	Input/Output Devices	Identify and classify I/O devices.
	Tuesday	9:00 AM - 12:00 PM	Storage Devices	Discuss different types of storage devices.
		2:00 PM - 5:00 PM	CPU and Memory	Explore CPU functions and memory hierarchy.
	Wednesday	No Classes	**Project Presentation**	Present a project on computer hardware assembly.
	Thursday	9:00 AM - 12:00 PM	Computer Assembly	Hands-on computer assembly and troubleshooting.
		2:00 PM - 5:00 PM	System Software	Introduction to operating systems and utility software.
	Friday	9:00 AM - 12:00 PM	Review & Q&A	Recap week's topics and address queries.
2	**Monday**	9:00 AM - 12:00 PM	Networking Basics	Overview of networking concepts and components.
		2:00 PM - 5:00 PM	Network Topologies	Explore different network topologies.
	Tuesday	9:00 AM - 12:00 PM	Networking Protocols	Dive into key protocols (HTTP, FTP, IP, TCP).
		2:00 PM - 5:00 PM	Network Security Basics	Implement basic network security practices.
	Wednesday	No Classes	**Project Presentation**	Present a project on OS setup or network security.
	Thursday	9:00 AM - 12:00 PM	Operating Systems	Explore OS utilities and troubleshooting tools.
		2:00 PM - 5:00 PM	OS Security	Configure firewalls and user permissions.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Review networking and OS concepts with hands-on tasks.

Module 2: Programming Language Basics (8 Weeks)

Week	Day	Time	Topics	Activities/Hands-On
1	**Monday**	9:00 AM - 12:00 PM	Introduction to Data Types	Explore primitive and non-primitive data types.
		2:00 PM - 5:00 PM	Variables and Constants	Practice declaring and initializing variables.
	Tuesday	9:00 AM - 12:00 PM	Arithmetic Operations	Implement basic arithmetic operations in code.
		2:00 PM - 5:00 PM	Introduction to Strings	Understand string representation and operations.
	Wednesday	No Classes	**Project Presentation**	Present simple projects using data types and variables.
	Thursday	9:00 AM - 12:00 PM	String Operations	Manipulate strings with concatenation, slicing, and formatting.
		2:00 PM - 5:00 PM	Boolean Logic and Operations	Solve problems using Boolean algebra.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Recap and solve exercises on variables, strings, and Booleans.
2	**Monday**	9:00 AM - 12:00 PM	Control Statements: if, else	Implement conditional logic in programs.
		2:00 PM - 5:00 PM	Control Statements: switch	Practice using switch statements for multiple conditions.
	Tuesday	9:00 AM - 12:00 PM	Loops: for, while, do-while	Work with different looping mechanisms.
		2:00 PM - 5:00 PM	Nested Loops	Implement and debug nested loop structures.
	Wednesday	No Classes	**Project Presentation**	Showcase small projects using control statements and loops.
	Thursday	9:00 AM - 12:00 PM	Introduction to Arrays	Understand arrays and their basic operations.
		2:00 PM - 5:00 PM	Array Manipulations	Practice sorting, filtering, and searching in arrays.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Solve hands-on problems using loops and arrays.
3	**Monday**	9:00 AM - 12:00 PM	Introduction to Lists	Learn about lists and their differences from arrays.

		2:00 PM - 5:00 PM	Dictionary Basics	Work with key-value pairs using dictionaries.
	Tuesday	9:00 AM - 12:00 PM	Advanced Dictionary Operations	Explore nested dictionaries and their operations.
		2:00 PM - 5:00 PM	Introduction to OOP	Understand basic Object-Oriented Programming concepts.
	Wednesday	No Classes	**Project Presentation**	Present projects using data structures.
	Thursday	9:00 AM - 12:00 PM	Classes and Objects	Define and use classes and objects in programs.
		2:00 PM - 5:00 PM	Methods in OOP	Create and call methods within classes.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Develop small projects incorporating classes and methods.
4	**Monday**	9:00 AM - 12:00 PM	Interfaces	Learn how to define and implement interfaces.
		2:00 PM - 5:00 PM	Inheritance	Practice extending classes and using inheritance.
	Tuesday	9:00 AM - 12:00 PM	Polymorphism	Implement method overriding and overloading.
		2:00 PM - 5:00 PM	Abstract Classes and Methods	Use abstract classes to define templates.
	Wednesday	No Classes	**Project Presentation**	Present OOP-based projects.
	Thursday	9:00 AM - 12:00 PM	File Handling Basics	Read from and write to files in the chosen language.
		2:00 PM - 5:00 PM	Exception Handling	Handle errors and exceptions gracefully in code.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Solve exercises on inheritance, polymorphism, and file handling.
5	**Monday**	9:00 AM - 12:00 PM	Introduction to Algorithms	Understand algorithm basics and complexity.
		2:00 PM - 5:00 PM	Search Algorithms: Linear	Implement linear search algorithms.
	Tuesday	9:00 AM - 12:00 PM	Search Algorithms: Binary	Practice binary search algorithms.
		2:00 PM - 5:00 PM	Sorting Algorithms: Bubble Sort	Implement and analyze bubble sort.

	Wednesday	No Classes	**Project Presentation**	Present projects utilizing search algorithms.
	Thursday	9:00 AM - 12:00 PM	Sorting Algorithms: Quick Sort	Practice quick sort algorithm.
		2:00 PM - 5:00 PM	Techniques for Solving Challenges	Apply algorithms to solve coding challenges.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Practice solving complex problems using learned algorithms.
6	**Monday**	9:00 AM - 12:00 PM	Advanced Techniques in Algorithms	Explore advanced sorting and searching techniques.
		2:00 PM - 5:00 PM	Recursive Algorithms	Implement and debug recursive solutions.
	Tuesday	9:00 AM - 12:00 PM	Problem Solving Strategies	Discuss and apply various problem-solving strategies.
		2:00 PM - 5:00 PM	Optimization in Coding	Optimize code for better performance and efficiency.
	Wednesday	No Classes	**Project Presentation**	Present projects focusing on optimization techniques.
	Thursday	9:00 AM - 12:00 PM	Basic Data Structures: Stacks	Implement and use stack data structure.
		2:00 PM - 5:00 PM	Basic Data Structures: Queues	Implement and use queue data structure.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Work on exercises involving stacks and queues.
7	**Monday**	9:00 AM - 12:00 PM	Techniques for Code Challenges	Solve competitive coding challenges.
		2:00 PM - 5:00 PM	Advanced Code Debugging	Debug complex code scenarios effectively.
	Tuesday	9:00 AM - 12:00 PM	Final Project Planning	Begin planning for the final capstone project.
		2:00 PM - 5:00 PM	Capstone Project Work	Start working on the capstone project.
	Wednesday	No Classes	**Project Presentation**	Update and present progress on the capstone project.
	Thursday	9:00 AM - 12:00 PM	Capstone Project Development	Continue development of the capstone project.
		2:00 PM - 5:00 PM	Peer Review and Feedback	Provide and receive feedback on projects.

	Friday	9:00 AM - 12:00 PM	Review & Practical	Consolidate all learned skills and apply in projects.
8	**Monday**	9:00 AM - 12:00 PM	Final Capstone Project	Finalize the capstone project.
		2:00 PM - 5:00 PM	Project Documentation	Prepare documentation for the capstone project.
	Tuesday	9:00 AM - 12:00 PM	Final Project Presentation Prep	Prepare for final project presentation.
		2:00 PM - 5:00 PM	Mock Presentations	Conduct mock presentations for practice.
	Wednesday	No Classes	**Final Project Presentation**	Present final capstone projects.
	Thursday	9:00 AM - 12:00 PM	Wrap-Up and Feedback	Reflect on the course, receive feedback, and discuss next steps.
		2:00 PM - 5:00 PM	Review	Reflect on the course, receive feedback, and discuss next steps.
	Friday	9:00 AM - 12:00 PM	Review	Reflect on the course, receive feedback, and discuss next steps.

Module 3: Software Development Foundation - Backend (8 Weeks)

Week	Day	Time	Topics	Activities/Hands-On
1	**Monday**	9:00 AM - 12:00 PM	Introduction to Version Control	Overview of Git, initializing repositories.
		2:00 PM - 5:00 PM	Basic Git Commands	Practice commit, push, pull, branch, and merge.
	Tuesday	9:00 AM - 12:00 PM	GitHub Basics	Creating repositories, pull requests, and issues on GitHub.
		2:00 PM - 5:00 PM	Collaborating on GitHub	Collaborate on a project with team members.
	Wednesday	No Classes	**Project Presentation**	Showcase GitHub collaborative projects.
	Thursday	9:00 AM - 12:00 PM	System Analysis and Design	Introduction to system analysis techniques.
		2:00 PM - 5:00 PM	Design Principles	Discuss SOLID principles and their applications.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Apply system analysis and design in a mini-project.
2	**Monday**	9:00 AM - 12:00 PM	OOP Design Patterns: Singleton	Implement Singleton pattern in a sample project.
		2:00 PM - 5:00 PM	OOP Design Patterns: Factory	Practice creating Factory patterns for object creation.
	Tuesday	9:00 AM - 12:00 PM	OOP Design Patterns: Adapter	Implement Adapter pattern to interface incompatible classes.
		2:00 PM - 5:00 PM	OOP Design Patterns: Builder	Use Builder pattern for constructing complex objects.
	Wednesday	No Classes	**Project Presentation**	Present small projects using design patterns.
	Thursday	9:00 AM - 12:00 PM	OOP Design Patterns: Command	Implement Command pattern to encapsulate requests.
		2:00 PM - 5:00 PM	OOP Design Patterns: Strategy	Use Strategy pattern for defining a family of algorithms.

	Friday	9:00 AM - 12:00 PM	Review & Practical	Solve real-world problems using design patterns.
3	**Monday**	9:00 AM - 12:00 PM	Introduction to Databases	Overview of SQL and relational databases.
		2:00 PM - 5:00 PM	SQL Basics: MySQL	Practice creating databases, tables, and performing CRUD.
	Tuesday	9:00 AM - 12:00 PM	Advanced SQL Queries	Join operations, subqueries, and aggregate functions.
		2:00 PM - 5:00 PM	Introduction to ORM	Understand Object-Relational Mapping (ORM) and its benefits.
	Wednesday	No Classes	**Project Presentation**	Demonstrate projects with SQL and ORM integration.
	Thursday	9:00 AM - 12:00 PM	Introduction to Basic Security	Discuss common security threats and their mitigations.
		2:00 PM - 5:00 PM	Hashing: MD5, SHA	Implement hashing techniques for securing data.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Work on securing applications with hashing techniques.
4	**Monday**	9:00 AM - 12:00 PM	Encryption & Decryption Basics	Understand encryption methods and practice with examples.
		2:00 PM - 5:00 PM	Authentication Techniques	Implement basic authentication systems.
	Tuesday	9:00 AM - 12:00 PM	Authentication	Securing projects
		2:00 PM - 5:00 PM	Authorization Basics	Implement role-based access control in applications.
	Wednesday	No Classes	**Project Presentation**	Showcase secure applications with proper authentication.
	Thursday	9:00 AM - 12:00 PM	Web Framework: ASP.NET Core, Django, Express.js, Springboot	Introduction and setting up ASP.NET Core projects.

		2:00 PM - 5:00 PM	Web Framework:	Create basic applications using framework.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Compare and practice with framework.
5	**Monday**	9:00 AM - 12:00 PM	Web Framework	Build RESTful APIs
		2:00 PM - 5:00 PM	Web Framework	Develop applications.
	Tuesday	9:00 AM - 12:00 PM	Introduction to API Development	Basics of RESTful API design and implementation.
		2:00 PM - 5:00 PM	API Development with Postman	Test APIs using Postman and automate testing scripts.
	Wednesday	No Classes	**Project Presentation**	Present APIs developed with various frameworks.
	Thursday	9:00 AM - 12:00 PM	Advanced API Development	Implement advanced features in APIs like pagination.
		2:00 PM - 5:00 PM	Error Handling in APIs	Practice proper error handling in API development.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Solve exercises on advanced API development.
6	**Monday**	9:00 AM - 12:00 PM	Introduction to API Security	Secure APIs with OAuth and API keys.
		2:00 PM - 5:00 PM	Rate Limiting and Throttling	Implement rate limiting to prevent abuse.
	Tuesday	9:00 AM - 12:00 PM	API Documentation	Document APIs using tools like Swagger or OpenAPI.
		2:00 PM - 5:00 PM	Versioning in APIs	Handle versioning in API development.
	Wednesday	No Classes	**Project Presentation**	Demonstrate well-documented and secure APIs.
	Thursday	9:00 AM - 12:00 PM	Database Performance Optimization	Optimize SQL queries and indexing.

		2:00 PM - 5:00 PM	Scaling APIs	Strategies for scaling APIs for performance.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Work on improving database and API performance.
7	**Monday**	9:00 AM - 12:00 PM	Monitoring and Logging	Implement logging and monitoring in backend applications.
		2:00 PM - 5:00 PM	Security Best Practices	Review and apply security best practices in backend development.
	Tuesday	9:00 AM - 12:00 PM	API Error Handling	Implement comprehensive error handling mechanisms in APIs.
		2:00 PM - 5:00 PM	Real-time API Applications	Explore and implement real-time APIs.
	Wednesday	No Classes	**Project Presentation**	Present real-time API applications and error-handling techniques.
	Thursday	9:00 AM - 12:00 PM	Project Refinement	Work on refining the final project for presentation.
		2:00 PM - 5:00 PM	Peer Review and Feedback	Engage in peer review and provide constructive feedback.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Finalize all aspects of the backend project.
8	**Monday**	9:00 AM - 12:00 PM	Final Project Development	Finalize capstone backend project development.
		2:00 PM - 5:00 PM	Project Testing	Conduct testing and debugging of the final project.
	Tuesday	9:00 AM - 12:00 PM	Project Presentation Preparation	Prepare for the final project presentation.
		2:00 PM - 5:00 PM	Project Demo Rehearsal	Practice and receive feedback on project demo.
	Wednesday	10:00 AM - 4:00 PM	**Final Project Presentation**	Present the final project to instructors and peers.

	Thursday	9:00 AM - 12:00 PM	Course Recap and Reflection	Reflect on the learning journey and discuss future applications.
	Friday	9:00 AM - 12:00 PM	Code challenge	

Module 4: Software Development Foundation - Frontend (4 Weeks)

Week	Day	Time	Topics	Activities/Hands-On
1	**Monday**	9:00 AM - 12:00 PM	Introduction to HTML	Structure of HTML documents, basic tags.
		2:00 PM - 5:00 PM	HTML Forms and Media	Create forms, embed media elements.
	Tuesday	9:00 AM - 12:00 PM	CSS Basics	Selectors, properties, styling techniques.
		2:00 PM - 5:00 PM	CSS Layouts: Flexbox & Grid	Practice layout designs using Flexbox and Grid.
	Wednesday	No Classes	**Project Presentation**	Present simple webpages using HTML and CSS.
	Thursday	9:00 AM - 12:00 PM	Introduction to JavaScript	Basic syntax, data types, and operators.
		2:00 PM - 5:00 PM	JavaScript Functions and Events	Create functions, handle DOM events.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Build interactive web pages with JavaScript.
2	**Monday**	9:00 AM - 12:00 PM	DOM Manipulation	Accessing and modifying the DOM.
		2:00 PM - 5:00 PM	Fetch API / AJAX (XHR)	Perform asynchronous data fetching.
	Tuesday	9:00 AM - 12:00 PM	CSS Frameworks Introduction	Overview of Bootstrap and Tailwind CSS.
		2:00 PM - 5:00 PM	Basic Bootstrap/Tailwind CSS	Build responsive designs using a CSS framework.
	Wednesday	No Classes	**Project Presentation**	Showcase projects using CSS frameworks.

	Thursday	9:00 AM - 12:00 PM	Introduction to React Basics	Set up React environment, create components.
		2:00 PM - 5:00 PM	React State and Props	Manage state and props in React applications.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Develop simple React applications.
3	**Monday**	9:00 AM - 12:00 PM	Package Manager: NPM	Install and manage packages using NPM.
		2:00 PM - 5:00 PM	Advanced React Components	Build reusable and complex components.
	Tuesday	9:00 AM - 12:00 PM	Web Security Basics	Overview of HTTPS, CORS, CSP.
		2:00 PM - 5:00 PM	Implementing Security Features	Apply basic security measures in web applications.
	Wednesday	No Classes	**Project Presentation**	Present secure web applications.
	Thursday	9:00 AM - 12:00 PM	OWASP Security Risks	Understanding common security vulnerabilities.
		2:00 PM - 5:00 PM	Mitigating OWASP Risks	Implement strategies to secure applications from OWASP threats.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Secure a React application against common threats.
4	**Monday**	9:00 AM - 12:00 PM	Version Control with Git	Basic Git commands, branching strategies.
		2:00 PM - 5:00 PM	Collaborating on GitHub	Pull requests, code reviews, managing repositories.
	Tuesday	9:00 AM - 12:00 PM	Final Project Development	Work on a comprehensive frontend project.
		2:00 PM - 5:00 PM	Project Testing and Debugging	Test and debug the final project.
	Wednesday	10:00 AM - 4:00 PM	**Final Project Presentation**	Showcase and present the final project to the class.
	Thursday	9:00 AM - 12:00 PM	Course Recap and Reflection	Reflect on learning outcomes, discuss best practices.

	Friday	9:00 AM - 12:00 PM	Review	

Module 5: Software Development Intermediate - Backend (3 Weeks)

Week	Day	Time	Topics	Activities/Hands-On
1	**Monday**	9:00 AM - 12:00 PM	Advanced Web Application Frameworks	Deep dive into ASP.NET Core for .NET/C#.
		2:00 PM - 5:00 PM	Building Advanced API with ASP.NET Core	Create and deploy APIs with ASP.NET Core.
	Tuesday	9:00 AM - 12:00 PM	Software Architectures: Overview	Introduction to Hexagonal/Onion Architecture.
		2:00 PM - 5:00 PM	Applying Hexagonal/Onion Architecture	Implement architecture in a small project.
	Wednesday	No Classes	**Project Presentation**	Showcase simple projects utilizing advanced frameworks.
	Thursday	9:00 AM - 12:00 PM	Design Patterns: Introduction	Overview of CQRS, Singleton, Factory patterns.
		2:00 PM - 5:00 PM	Implementing Design Patterns	Apply patterns in coding exercises.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Code review and discussion on architecture and patterns.
2	**Monday**	9:00 AM - 12:00 PM	Basic Containerization	Introduction to Docker concepts and commands.
		2:00 PM - 5:00 PM	Docker Compose for Multi-container Apps	Hands-on with Docker Compose.
	Tuesday	9:00 AM - 12:00 PM	Software Testing: Unit Testing	Writing and executing unit tests.
		2:00 PM - 5:00 PM	Advanced Unit Testing	Test-driven development (TDD) practices.
	Wednesday	No Classes	**Project Presentation**	Present containerized applications with unit tests.

	Thursday	9:00 AM - 12:00 PM	AI Basics: Overview	Introduction to AI concepts and applications.
		2:00 PM - 5:00 PM	Applying AI Basics	Integrate basic AI features into a backend application.
	Friday	9:00 AM - 12:00 PM	Review & Practical	Discussion on AI implementation in backend systems.
3	**Monday**	9:00 AM - 12:00 PM	Basic DevOps: Bash Scripting	Writing and executing Bash scripts for automation.
		2:00 PM - 5:00 PM	Automation with GitHub Actions	Set up CI/CD pipelines using GitHub Actions.
	Tuesday	9:00 AM - 12:00 PM	Final Project Development	Build a comprehensive backend project.
		2:00 PM - 5:00 PM	Project Testing and Deployment	Test and deploy the final project using Docker and CI/CD.
	Wednesday	10:00 AM - 4:00 PM	**Final Project Presentation**	Showcase and present the final project to the class.
	Thursday	9:00 AM - 12:00 PM	Course Recap and Reflection	Reflect on learning outcomes, discuss best practices.
	Friday	9:00 AM - 12:00 PM	Review	Review