

CSE 3100: Web Programming Laboratory

Lab Contents:

Week	Topic	Contents
01	Basics of HTML and CSS	<ul style="list-style-type: none">➤ HTML Document Structures (<html>, <head>, <body> etc.)➤ HTML Elements (Headings, Paragraphs, Lists, Links, Images etc.)➤ HTML Tables and Forms➤ HTML Attributes (class, id etc.) and CSS Selectors➤ CSS Box Model (Content, Padding, Border, Margin)➤ CSS Properties (Color, font, text alignment etc.)➤ CSS Layout (Flexbox, Grid with positioning elements e.g. relative, absolute, fixed)➤ Responsive Design➤ Using Bootstrap
02	Basics of JavaScript	<ul style="list-style-type: none">➤ Variables, Constants, and Comments➤ Data Types (Including Strings)➤ Control Flow (If-else, Nested If-else, Switch)➤ JavaScript Functions➤ Arrays➤ Objects (Constructors)➤ Events and Event Handling (DOM Events e.g. click, submit, change; Event Listeners)
	Environment Setup	<ul style="list-style-type: none">➤ Setting up the Environment for PHP Development (VSCode, Xampp etc.)➤ Setting up the Environment for ASP.NET Development
03	Getting Started with PHP	<ul style="list-style-type: none">➤ Variables, Constants, and Comments➤ Data Types (Including Strings)➤ Control Flow (If-else, Nested If-else, Switch)➤ Operator Precedence➤ PHP Loops (While, For, For-each, Continue and Break)➤ PHP Functions➤ Variable Scopes➤ PHP Array and Associative Array (Array Manipulations e.g. Adding, Removing, Concatenating, Searching, Shuffling etc.)
	PHP Object Oriented Programming	<ul style="list-style-type: none">➤ Classes, Objects, Methods, and Properties➤ Public and Private Methods and Properties➤ Inheritance➤ Traits and Use Keyword➤ Abstract Classes and Abstract Methods➤ Interfaces➤ Namespace➤ Include and Require Statements

04	Getting Started with ASP.NET	<ul style="list-style-type: none"> ➤ Variables, Constants, and Comments ➤ Data Types (Including Strings) ➤ Control Flow (If-else, Nested If-else, Switch) ➤ Operator Precedence ➤ C# Loops (While, For, For-each, Continue and Break) ➤ C# Functions ➤ Variable Scopes ➤ Arrays, Dictionary
	C# Object Oriented Programming	<ul style="list-style-type: none"> ➤ Classes, Objects, Methods, and Properties ➤ Public and Private Methods and Properties ➤ Inheritance ➤ Abstract Classes and Abstract Methods ➤ Interfaces ➤ Namespace ➤ Using Statements
05	File, Session, Cookies, Date, Exception	<ul style="list-style-type: none"> ➤ Opening Files in Different Modes ➤ Reading, Writing, and Appending Data ➤ Processing Data in Serialized Arrays and JSON Format in Files ➤ Working with Sessions ➤ User Authentication and Role Management (Access Control) using Sessions ➤ Working with Cookies ➤ Working with Date Formats ➤ Discussions of Exceptions (Types of Exceptions, Try-catch) ➤ Custom Error Handlers, Fatal Error Handlers
	SQL and Database Management System	<ul style="list-style-type: none"> ➤ PHP/ASP.NET Database Basics (Table Structure) ➤ CRUD Operations ➤ Data Grouping, Where Clause, Aggregator Functions ➤ Join in SQL (Inner, Outer, Left, Right)
06	Introduction to Laravel Architecture	<ul style="list-style-type: none"> ➤ Setting up the Environment for Laravel (Composer) ➤ Creating and Understanding Project Structure ➤ Artisan Commands (make:view, make:controller, make:model etc.) ➤ Basic Routing
	Blade Templates	<ul style="list-style-type: none"> ➤ Blade Syntax (e.g. {{ }}, {!! !!}, Comments etc.) ➤ Control Structures (If-else, For, For-each, For-else, While) ➤ Template Inheritance (@extends and @yield, @section and @show) ➤ Pass Data from Controller ➤ Blade and JavaScript (@push and @stack) ➤ Route and Url Helpers

07	Laravel Request-Response Model, REST API	<ul style="list-style-type: none"> ➤ Introduction to REST API ➤ Request-Response with Postman ➤ Different Types of Request-Response (Simple Request, Request with Parameter, Request with Header and Body, Form Data, File Upload, Redirect Response etc.)
08	MVC Pattern and Laravel Controller, Middleware, Session, Cookies	<ul style="list-style-type: none"> ➤ Understanding MVC ➤ Understanding Controller (Working with Constructors) ➤ Understanding Middleware ➤ Using Middleware (Request Verification, Request Redirect, Manipulate Request Header, Rate Limiting etc.) ➤ Session and Cookies in Laravel
	Laravel Migration and Database Designing	<ul style="list-style-type: none"> ➤ Introductions to Laravel Migrations, Creating Migrations ➤ Database Schemas ➤ Modifying Tables ➤ Indexes and Foreign Keys ➤ Seeding ➤ Rollback and Refresh
09	Query Builder	<ul style="list-style-type: none"> ➤ Retrieving Single Rows, All Rows ➤ Select, Where Clauses ➤ Join Clauses
	Eloquent ORM Essentials: Models, Operations, and Advanced Queries	<ul style="list-style-type: none"> ➤ How Eloquent ORM Works ➤ Model Naming Conventions ➤ Insert, Update, Delete, Fillable Properties ➤ Retrieving Rows and Columns ➤ Aggregation, Select Clause, Where Clause
10	Final Project	<ul style="list-style-type: none"> ➤ Project Development using a Web Framework (e.g. Laravel) ➤ Project Showcasing

Assessments:

Sl. No.	Assessment Type	Details
01	Lab Reports	
02	Lab Test 1	After week 04, based on week 01-04
03	Assignment	Portfolio Website, based on week 01-05, implemented using PHP/ASP.NET
04	Final Project	On your submitted idea of a complete system, implemented using a web framework (e.g. Laravel)