CET 322.01 Programming for the Internet - Spring 2025

Course Information

Course Code: CET 322.01
Prerequisites: CET 301, CET 321
Duration: 12 weeks

Course Description

Programming languages used on the internet. Introduction to client-server architecture. Examining languages for client and server side programming. Integrated development environments and editors for internet programming. Concept and usage of "cookies." Sending HTTP requests and responses; connecting and manipulating data sources over the internet. Developing dynamic internet applications for educational purposes.

Course Objectives

By the end of this course, students will be able to: - Understand the fundamentals of web application architecture - Implement web applications using ASP.NET MVC framework - Apply Model-View-Controller (MVC) design pattern effectively - Design and implement database operations using Entity Framework Core - Implement comprehensive security measures in web applications - Deploy web applications to production environments

Required Materials

- Visual Studio 2022
- SQL Server Management Studio
- Git for version control
- Course materials provided by instructor

Assessment Methods

- Assignments (30%):
- Midterm Exam (30%)
- Final Project (40%)

Weekly Schedule

Week 1: Introduction to Web Development - Web application architecture overview - Introduction to ASP.NET MVC - Development environment setup

Week 2: ASP.NET MVC Fundamentals - MVC pattern overview - Project structure - Routing basics

Week 3: Controllers and Actions - Controller fundamentals - Action methods - Parameter binding

Week 4: Views and Razor Syntax - Razor syntax - View fundamentals - Layouts and partial views - HTML helpers

Week 5: Introduction to Entity Framework Core - Entity Framework Core basics - Code-first approach - Database context and connection setup

Week 6: Advanced Entity Framework Core - Complex data models - Relationships and navigation properties - Querying with LINQ

Week 7: Data Validation and State Management - Model validation - Data annotations - Session management

Week 8: Authentication Fundamentals - ASP.NET Core Identity overview - User management - Role-based authorization

Week 9: Advanced Authentication and Security - Custom authentication implementation - Claims-based authorization - Security best practices

Week 10: Advanced Topics - Dependency injection - Repository pattern - Unit of Work pattern

Week 11: Project Development Workshop - Final project requirements review - Project planning and architecture - Database design consultation - Individual project consultations

Week 12: Project Development - Project development support - Technical problem solving - Code review sessions - Implementation guidance

Final Project Requirements

Students will develop a complete web application demonstrating: - Implementation of MVC architecture - Entity Framework Core implementation - Complex database operations - User authentication and authorization - Form validation and data processing - Clean and maintainable code - Documentation

Academic Integrity

Students are expected to maintain academic integrity throughout the course. Any form of plagiarism or academic dishonesty will result in disciplinary action according to university policies.

Additional Resources

- Official ASP.NET Documentation
- Entity Framework Core Documentation
- ASP.NET Core Identity Documentation
- Course management system