

IT-2030: ASP.NET WEB PROGRAMMING

Cuyahoga Community College

Viewing: IT-2030 : ASP.NET Web Programming

Board of Trustees:

May 2022

Academic Term:

Fall 2023

Subject Code

IT - Information Technology

Course Number:

2030

Title:

ASP.NET Web Programming

Catalog Description:

Capstone course for Programming and Development majors. Advanced server-side programming course. Create server-side, database-driven websites using the ASP.NET framework in combination with markup, style sheets and client-side scripting.

Credit Hour(s):

4

Lecture Hour(s):

3

Lab Hour(s):

2

Requisites

Prerequisite and Corequisite

IT-2310 Web Programming, and IT-2351 Enterprise Database Systems; and IT-2650 Java Programming.

Outcomes

Course Outcome(s):

Use a current web programming framework to design and create a dynamic server-side website.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Cultural Sensitivity: Demonstrate sensitivity to the beliefs, views, values, and practices of cultures within and beyond the United States.

Objective(s):

1. Create a website that responds to client requests.
2. Read and respond to get and put information from the client request.
3. Demonstrate an understanding of a model-view-controller approach to generating dynamic server-side websites.
4. Address cultural sensitivity in Website design.

Course Outcome(s):

Use client-side programming techniques in combination with server-side programming.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):

1. Demonstrate an understanding of the client-server model as it applies to web programming.
2. Include markup, styles and client-side scripting in a dynamic response.

Course Outcome(s):

Design and write programs applying critical thinking and appropriate programming techniques as they apply to a web programming framework.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):

1. Create a user-interface using framework provided objects.
2. Inherit or implement framework classes or interfaces to create server-side responses.
3. Create Variables.
4. Call framework-provided methods.
5. Use collections.
6. Design algorithms with the appropriate control structures.

Course Outcome(s):

Apply database manipulation language techniques to create dynamic database-driven web requests and responses.

Essential Learning Outcome Mapping:

Quantitative Reasoning: Analyze problems, including real-world scenarios, through the application of mathematical and numerical concepts and skills, including the interpretation of data, tables, charts, or graphs.

Objective(s):

1. Connect to a database.
2. Retrieve records from a database.
3. Display records using a combination of server-side and client-side techniques.
4. Update records in a database.

Methods of Evaluation:

- a. Class participation and discussion
- b. Oral and/or written reports
- c. Homework assignments
- d. Comprehensive projects
- e. Quizzes
- f. Objectives examinations
- g. Other methods deemed appropriate by the department

Course Content Outline:

- a. An overview of the ASP.NET framework
 - i. Introduction to Visual Studio and Visual Studio Code
 - ii. The MVC pattern
 - iii. ASP.NET Core MVC
 - iv. State in a web application
 - v. Types of middleware: Static-file, Routing, CORS, Authentication, Authorization, and Endpoint
 - vi. Razor code, tag helpers, and Bootstrap CSS classes
- b. Building Applications
 - i. Service configuration and dependency injection
 - ii. Application configuration
 - iii. MVC and Razor Pages filter pipeline
 - iv. Securing an applications

- v. Publishing and deploying an applications
- vi. Manually test and debug an ASP.NET Core web application
- c. Build a data-driven MVC web application
 - i. EF Core
 - ii. DbContext class
 - iii. Connection strings
 - iv. Migrations
 - v. SQL: select, insert, update and, delete
- d. Controllers and Routing
 - i. Default route
 - ii. Code a controller and controller actions using the id segment
- e. Razor views
 - i. Code blocks and inline expressions
 - ii. Inline loops and conditional statements
 - iii. Create controllers that return views
- f. ActionResult
 - i. ActionResult object and subtypes
 - ii. Returning ActionResult objects
 - iii. ViewData and ViewBag properties of ActionResult
- g. Sessions and Cookies
 - i. ASP.NET MVC methods to handle state
 - ii. Configuring an application to work with session state
 - iii. Working with session state within a controller
 - iv. Using JSON to store session state
- h. Data Validation
 - i. Model binding and data validation
 - ii. Formatting validation messages with CSS
 - iii. Client and Server-side validation
- i. Responsible Website design
 - i. Cultural considerations
 - ii. Ethics in data and design

Resources

Delamater, M. & Murach, J. *Murach's ASP.NET Core MVC*. Fresno, CA: Mike Murach & Associates, Inc., 2020.

Peres, Ricardo. *Modern Web Development with ASP.NET Core 3*. 2nd. Birmingham, UK: Packt Publishing, 2019.

Esposito, Dino. *Programming ASP.NET Core*. Pearson Education, Inc., 2018.

Lock, Andrew. *ASP.NET Core in Action*. 2nd. Shelter Island, NY: Manning Publications Co., 2021.

Resources Other

Cultural Sensitivity for eCommerce Websites: <https://understandingecommerce.com/the-importance-of-cultural-sensitivity-for-ecommerce-websites/>

Ethically Aligned Design: <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ead1e.pdf>

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