

QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Cyber Security Department
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Study plan No.	2024/2025	University Specialization	Cybersecurity
Course No.	0133234	Course name	Internet Application Programming (2)
Credit Hours	3	Prerequisite Co-requisite	Internet Application Programming (1)
Course type	<input type="checkbox"/> Mandatory university requirement <input type="checkbox"/> university elective requirements	<input type="checkbox"/> faculty mandatory requirement <input type="checkbox"/> support course family requirements	<input checked="" type="checkbox"/> Mandatory requirements <input type="checkbox"/> elective requirements
Teaching style	<input type="checkbox"/> Full online learning	<input type="checkbox"/> Blended learning	<input checked="" type="checkbox"/> Traditional learning
Teaching model	<input type="checkbox"/> 2Synchronous: 1asynchronous	<input type="checkbox"/> 2 face to face: 1synchronous	<input type="checkbox"/> 3 Traditional

### Faculty member and study divisions information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Division number	Time	Place	Number of students	Teaching style	Approved model

### Brief description

Explore the fundamentals of ASP.NET Core MVC in this intensive short course. Designed for beginners, this hands-on program covers the essentials of building dynamic, data-driven web applications. Dive into the Model-View Controller architecture, master Razor syntax for views, and understand how to connect your application to databases using Entity Framework Core. Gain practical experience in creating responsive web interfaces and implementing secure authentication. By the end of this course, you'll have the skills to develop robust, interactive web applications with ASP.NET Core MVC.

### Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	<ol style="list-style-type: none"> <li>1. Mark J. Price. "C# 9 and .NET 5 – Modern Cross-Platform Development: Build intelligent apps, websites, and services with Blazor, ASP.NET Core, and Entity Framework Core using Visual Studio Code, 5th Edition". Birmingham-Mumbai/PackT; (2020)</li> <li>2. Andrew Lock. "ASP.NET Core in Action, Second Edition". Manning Publication; (2021)</li> </ol>			
Supporting websites				
The physical environment for teaching	<input type="checkbox"/> Class room	<input checked="" type="checkbox"/> Labs	<input type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others
Necessary equipment and software				
Supporting people with special needs				
For technical support	E-learning and Open Educational Center. Computer Center			

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**Course learning outcomes (S= Skills, C= Competences K= Knowledge,)**

No.	Course learning outcomes	The associated program learning output code
<b>Knowledge</b>		
<b>K1</b>	Describe the architecture of ASP.NET Core MVC.	<b>MK1</b>
<b>K2</b>	Understand the Model-View Controller (MVC) design pattern and its implementation in ASP.NET Core.	<b>MK2</b>
<b>K3</b>	Integrate ASP.NET Core MVC applications with databases	<b>MK3</b>
<b>K4</b>	Use Entity Framework Core for data access and manipulation	<b>MK4</b>
<b>K5</b>	Implement authentication and authorization in ASP.NET Core MVC applications.	<b>MK5</b>
<b>Skills</b>		
<b>S1</b>	Develop web applications using ASP.NET Core MVC framework.	<b>S1</b>
<b>S2</b>	Implement controllers, views, and models in ASP.NET Core MVC applications. technology to use to develop any given web application	<b>S2</b>
<b>S3</b>	applying Entity Framework Core for data access and develop CRUD pages.	<b>S3</b>
<b>Competences</b>		
<b>C1</b>	Ability to develop web application systems in one or more significant application domains	<b>C1</b>
<b>C2</b>	An ability to communicate with, and learn from, experts from different domains related to web applications throughout their careers	<b>C2</b>

**Mechanisms for direct evaluation of learning outcomes**

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
First exam	0	0	0	0
Second / midterm exam	%30	%30	%30	%30
Participation / practical applications	0	0	0	0
Asynchronous interactive activities	%30	%30	%30	%30
final exam	%40	%40	%40	%40

**Note:** Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

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### Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style*	Reference **
1	Chapter 1: An introduction to web programming with 4-30 ASP.NET Core programming	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
2	Chapter 2: How to develop a single page MVC application	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
3	Chapter 8: How to transfer data from controllers	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
4	Chapter 7: How to work with Razor View	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
5	Chapter 7: How to work with Razor View	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
6	Chapter 9: How to work with session state and Cookies	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
7	Chapter 10: How to work with model binding	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
8	<b>Midterm Exam 30%</b>	Face to Face	
9	Chapter 10: How to work with model binding	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
10	Chapter 12: How to use EF Core	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
11	Chapter 12: How to use EF Core Continue	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
12	Chapter 12: How to use EF Core Continue	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
13	Chapter 11: How to use validate data	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)

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14	Chapter 16 How to authenticate and authorize users	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
15	Chapter 16 How to authenticate and authorize users Continue	Face to Face	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)
16	<b>Final Exam 40%</b>	Face to Face	

\* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

\*\* Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

### Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

This activities was designed using the **Project-Based Learning (PBL)**

Project 1: MVC Application & Razor Views (PBL)

Task / Activity	Reference	Expected Results
ASP.NET Core web programming concepts	Chapter 1: Introduction to ASP.NET Core Programming	Clear understanding of ASP.NET Core environment
Develop a single-page MVC web application	Chapter 2: Develop a Single Page MVC Application	Functional MVC web app created
Design controllers to handle web requests	Chapter 8: Transfer Data from Controllers	Proper controller logic implemented
Create and structure Razor Views	Chapter 7: Work with Razor View	Dynamic Razor views implemented
Bind Razor Views with controller data	Chapter 7: Work with Razor View	Correct display of data in UI
Test MVC functionality and UI behavior	Related practical exercises	Fully working MVC structure
Prepare final documentation	PBL Documentation	Structured project report

Week	Task / activity	Reference	Expected results
1	Lecture discussion and group brainstorming session on real-world examples of web application use cases.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will articulate the purpose and scope of web application programming.
2	Hands-on session: Create a basic single-page application using MVC architecture	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will develop a functioning single-page application structure.
3	Implement controller actions to pass data to views using Razor syntax.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will understand the flow of data within the MVC pattern.

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4	Create and style views using Razor syntax to display dynamic content.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will master dynamic data presentation with Razor.
5	Build a view for a product catalog using advanced Razor techniques.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will apply advanced Razor capabilities in real-world scenarios.
6	Implement session management using cookies in ASP.NET Core.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will demonstrate secure session handling in web applications.
7	Develop forms and process data using model binding techniques.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will implement CRUD operations using model binding.
8	Set up a database and connect it to an ASP.NET Core application using Entity Framework Core.	Mary Delamater, Joel Murach. "MURACH'S ASP.NET CORE MVC (2ND EDITION)". Mike Murach & Associate, Inc; (2022)	Students will create a functional database connection.