



Innovative ICT Education for Social-Economic Development (IESED)  
574283-EPP-1-2016-1-LT-EPPKA2-CBHE-JP

# WEB TECHNOLOGIES

Minsk 2017

## 1. PLAN OF STUDY DISCIPLINE

Course code	Year of study	Semester	Academic hours				Hours of course work	ECTS	Number of hours
			Total	Lecture	Lab	Practice/ seminar			
	4	7	82	26	26		30	3	Full-time
	5	9	20	10	10		62	3	Part-time

## 2. COURSE GOALS:

This class will introduce students to the Web technologies, Web-programming and give him experience creating Web applications.

## 3. COMPETENCES TO BE DEVELOPED IN THE IMPLEMENTATION OF THE STUDY PROGRAM

1. Model, develop software, and technical documentation to support activities in Web.
2. Organize automated support for various activities.
3. Be able to apply basic scientific and theoretical knowledge to solve practical problems.

## 4. EDUCATIONAL AND METHODOLOGICAL MAP (for full-time form of learning)

Section number, topics, classes	Section number, topics, classes; list of issues to be studied	Academic hours				Form of knowledge econtrol
		Lecture	Practical classes (seminar)	Laboratory classes	Controlled independent work of a student	
1	2	3	4	5	6	7
<b>Topic 1.</b>	<b>Introduction to ASP.NET</b> Basic concepts of web technologies. Technologies on the client's side and on the server side. Comparative characteristics of the technologies used. The principle of WEB.NET Framework. Steps to create ASP.NET. ASP.NET page elements. Integration of ASP.NET with .NETFramework. Compiling the code in ASP.NET. Multilanguage support for ASP.NET. ASP.NETCLR service. Writing ASP.NET and HTML code. ASP.NET application.	4		2	2	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 2.</b>	<b>ASP.NET and Visual Studio.</b> The .NET development model. ASP.NET applications. ASP.NET Web-forms and ASP.NETMVC. Integrated development environment MSVisualStudio. Web sites and web projects. Creation of a project without a project. Multivariance. The Solution Explorer window. The document window. Toolbox window. ErrorList and TaskList windows. The ServerExplorer window. The code editor. IntelliSense and structuring. The code model. Linking a separate code file to pages. Binding to events and event handlers. Create a web project. Debugging in Visual Studio. Macros in VisualStudio. Sessions. State management in ASP.NET.	2		4	2	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 3.</b>	<b>Introduction to Visual Basic.NET.</b> Variables. Data types. Arrays. Operators. Conditional	2		4	4	<ul style="list-style-type: none"> <li>• Written assignments on</li> </ul>

	structures. "If" commands. Commands "case". Cyclic structures. Structures of displacements. Procedures. Functions. Event handlers. Classes. Command "new". Inheritance. Useful functions of VB.NET.					the educational portal. • Forum of the educational portal.
<b>Topic 4.</b>	<b>Introduction to C #.</b> The history of C #. The syntax of C #. Variables. Data types. Arrays. Hashes. Operators. Conditional structures. "If" commands. "Case" commands. Cyclic structures. Methods. Event handlers. Classes. "New" command. Garbage collector. Object class and its methods. Objects. Instances of objects. Static members. Properties. Indexers. Inheritance. Interfaces. Polymorphism. Anonymous methods. Generics. Delegates. Events. LINQ basics.	<b>4</b>		<b>4</b>	<b>4</b>	• Written assignments on the educational portal. • Forum of the educational portal.
<b>Topic 5.</b>	<b>ADO.NET in ASP.NET</b> Basics of work with forms. Expanding the capabilities of the WEB-form. Verify the validity of the data in ASP.NET. Database and ASP.NET. Basics of ADO.NET. Data Components and DataSet. Working with the database. Communication. Populating the DataSet. Controls that use data bindings. XML data model. XML schemas. Using XML in ASP.NET.	<b>4</b>		<b>6</b>	<b>8</b>	• Written assignments on the educational portal. • Forum of the educational portal.
<b>Topic 6.</b>	<b>Using XML in ASP.NET</b> Data model in XML. Access to XML by means of ASP.NET. XML controls. Reading XML. An XML record. Validation of XML. The XML document object model. Loading XML data. Changing XML data. XML in the DataSet. LINQ to DataSet. LINQtoSQL.	<b>4</b>		<b>2</b>	<b>2</b>	• Written assignments on the educational portal. • Forum of the educational portal.
<b>Topic 7.</b>	<b>Work with files in ASP.NET.</b> Reading and writing files on the WEB server. Working with files in ASP.NET. Enable external files. Server inclusions. Comparison of server and other inclusions. Access to files. Files and streams. Work with files and directories. Opening files. Reading files. Writing files. Other operations with files and directories. The File object. Serialization. Isolated data warehouses - creation and access.	<b>2</b>		<b>2</b>	<b>2</b>	• Written assignments on the educational portal. • Forum of the educational portal.
<b>Tema 8.</b>	<b>Configuration and security</b> Configuring ASP.NET. Sections with configuration parameters. Custom configuration. Deploy the application. Assembly caches. "Shadow" assemblies. Use of WEB-services and organization of their protection. ASP.NET application security. The HttpApplication class. Programming global.asax. Fundamentals of information security. Data protection in the Windows operating system. Windows Authentication. Authentication using forms. Authorization. Borrowing rights. Profiles.	<b>4</b>		<b>2</b>	<b>6</b>	• Written assignments on the educational portal. • Forum of the educational portal.
	<b>TOTAL</b>	<b>26</b>		<b>26</b>	<b>30</b>	

### 5. EDUCATIONAL AND METHODOLOGICAL MAP (for part-time form of learning)

Section number, topics, classes	Section number, topics, classes; list of issues to be studied	Academic hours				Form of knowledge control
		Lecture	Practical classes (seminar)	Laboratory classes	Controlled independent work of a student	

1	2	3	4	5	6	7
<b>Topic 1.</b>	<b>Introduction to ASP.NET</b> Basic concepts of web technologies. Technologies on the client's side and on the server side. Comparative characteristics of the technologies used. The principle of WEB.NET Framework. Steps to create ASP.NET. ASP.NET page elements. Integration of ASP.NET with .NETFramework. Compiling the code in ASP.NET. Multilanguage support for ASP.NET. ASP.NETCLR service. Writing ASP.NET and HTML code. ASP.NET application.	1		1	6	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 2.</b>	<b>ASP.NET and Visual Studio.</b> The .NET development model. ASP.NET applications. ASP.NET Web-forms and ASP.NETMVC. Integrated development environment MSVisualStudio. Web sites and web projects. Creation of a project without a project. Multivariance. The Solution Explorer window. The document window. Toolbox window. ErrorList and TaskList windows. The ServerExplorer window. The code editor. IntelliSense and structuring. The code model. Linking a separate code file to pages. Binding to events and event handlers. Create a web project. Debugging in Visual Studio. Macros in VisualStudio. Sessions. State management in ASP.NET.	1		1	6	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 3.</b>	<b>Introduction to Visual Basic.NET.</b> Variables. Data types. Arrays. Operators. Conditional structures. "If" commands. Commands "case". Cyclic structures. Structures of displacements. Procedures. Functions. Event handlers. Classes. Command "new". Inheritance. Useful functions of VB.NET.	1		1	8	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 4.</b>	<b>Introduction to C #.</b> The history of C #. The syntax of C #. Variables. Data types. Arrays. Hashes. Operators. Conditional structures. "If" commands. "Case" commands. Cyclic structures. Methods. Event handlers. Classes. "New" command. Garbage collector. Object class and its methods. Objects. Instances of objects. Static members. Properties. Indexers. Inheritance. Interfaces. Polymorphism. Anonymous methods. Generics. Delegates. Events. LINQ basics.	2		2	10	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 5.</b>	<b>ADO.NET in ASP.NET</b> Basics of work with forms. Expanding the capabilities of the WEB-form. Verify the validity of the data in ASP.NET. Database and ASP.NET. Basics of ADO.NET. Data Components and DataSet. Working with the database. Communication. Populating the DataSet. Controls that use data bindings. XML data model. XML schemas. Using XML in ASP.NET.	2		2	10	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 6.</b>	<b>Using XML in ASP.NET</b> Data model in XML. Access to XML by means of ASP.NET. XML controls. Reading XML. An XML record. Validation of XML. The XML document object model. Loading XML data. Changing XML data. XML in the DataSet. LINQ to DataSet. LINQtoSQL.	1		1	8	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Topic 7.</b>	<b>Work with files in ASP.NET.</b> Reading and writing files on the WEB server. Working with files in ASP.NET. Enable external files. Server inclusions. Comparison of server and other inclusions. Access to files. Files and streams. Work with files and directories. Opening files. Reading files. Writing files. Other operations with files and directories. The File object. Serialization. Isolated data warehouses - creation and access.	1		1	8	<ul style="list-style-type: none"> <li>• Written assignments on the educational portal.</li> <li>• Forum of the educational portal.</li> </ul>
<b>Tema 8.</b>	<b>Configuration and security</b>	1		1	6	<ul style="list-style-type: none"> <li>• Written</li> </ul>

	Configuring ASP.NET. Sections with configuration parameters. Custom configuration. Deploy the application. Assembly caches. "Shadow" assemblies. Use of WEB-services and organization of their protection. ASP.NET application security. The HttpApplication class. Programming global.asax. Fundamentals of information security. Data protection in the Windows operating system. Windows Authentication. Authentication using forms. Authorization. Borrowing rights. Profiles.					assignments on the educational portal. • Forum of the educational portal.
	<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>62</b>		

## 6. THE CONTENT OF TOPICS OF THE LECTURES

№	Topic name	Content
Lecture 1	Basic concepts of web technologies.	Technologies on the client side and on the server side. Comparative characteristics of the technologies used.
Lecture 2	Introduction to ASP.NET.	The principle of WEB. NET Framework. Steps to create ASP.NET. ASP.NET page elements. Integration of ASP.NET with .NETFramework. Compiling the code in ASP.NET. Multilanguage support for ASP.NET. ASP.NET CLR service.
Lecture 3	Writing ASP.NET and HTML code	ASP.NET application. CommonLanguageRuntime in ASP.NET. Programming languages in ASP.NET. ASP.NET development model.
Lecture 4	The .NET development model.	ASP.NET applications. ASP.NET Web forms and ASP.NET MVC. Integrated development environment MS Visual Studio. Web sites and web projects. Creation of a non-project website.
Lecture 5	Introduction to C #	The history of C #. The syntax of C #. Variables. Data types. Arrays. Hashes. Operators. Conditional structures. If commands. The case. Cyclic structures. Methods. Event handlers.
Lecture 6	OOP in C #.	Classes. Command "new". Garbage collector. The class "Object" and its methods. Objects. Instances of objects. Static members. Properties. Indexers. Inheritance. Interfaces. Polymorphism.
Lecture 7	ASP.NET WEB-Forms	Basics of working with forms. Expanding the capabilities of the WEB-form. Verify the validity of the data in ASP.NET. Database and ASP.NET.
Lecture 8	Basics of ADO.NET.	Data Components and DataSet. Working with the database. Connections. Populating the DataSet. Controls that use data bindings.
Lecture 9	XML in ASP.NET	The data model in XML. Access to XML by ASP.NET. XML control elements. Reading of XML. Record of XML. Validation of XML. XML document object model.
Lecture 10	ADO.NET in ASP.NET	Loading XML data. Changing XML data. XML in the DataSet. LINQ to DataSet. LINQ to SQL.
Lecture 11	Working with files in ASP.NET	Reading and recording files on the WEB server. Working with files in ASP.NET. Inclusion of external files. Server inclusions. Comparison of server and other inclusions. Access to files. Files and streams. Work with files and directories. Opening files. Reading files. Recoring files.
Lecture 12	WEB-services and information protection	Use of WEB-services and organization of their protection. ASP.NET application security. The HttpApplication class. Programming global.asax. Fundamentals of information security. Data protection in the Windows operating system. Windows Authentication. Authentication using forms. Authorization. Borrowing rights. Profiles. Cryptography.
Lecture 13	Configuring ASP.NET.	Sections with configuration parameters. Customer configuration. Deploy the application. Assembly caches. "Shadow" assemblies.

## 8. THE CONTENT OF TOPICS OF THE LABORATORY CLASSES

№	Topic name	Content
1	Introduction to ASP.NET	Create a simple ASP-page and upload it to Windows hosting with ASP support.
2	ASP.NET and Visual Studio.	Creating a Web site using ASP.NET
3	Introduction to VisualBasic.NET.	Using programming on VisualBasic.NET.
4	OOP in Visual Basic .NET.	Creating an object-oriented structure on VisualBasic.NET in an ASP.NET project.
5	Introduction to C #	Using C # programming in an ASP.NET project.

6	OOP in C #	Implementing polymorphism in C # in an ASP.NET project.
7	Event structure of ASP.NET	Programming delegates and events in C # in an ASP.NET project.
8	ADO.NET in ASP.NET	Working with databases in a connected and detached environment. Data Components and DataSet. Working with the database. Connections. Populating the DataSet. Control elements that use data bindings.
9	Working with XML in ASP.NET.	Access to XML by ASP.NET. XML controls. Reading XML. Recording XML.
10	Using serialization in ASP.NET.	Serializing objects and sending them through HTTP protocol.
11	Protecting information with Windows tools	Data protection in the Windows operating system. Windows Authentication.
12	Protection of information using ASP.NET.	Authentication using forms. Authorization. Borrowing rights.
13	Deploy the application	Deploying an ASP.NET application. Correcting typical errors.

## 9. AN INDICATIVE LIST OF TASKS OF STUDENTS' CONTROLLED INDEPENDENT WORK

№	Topic name	Content
1	Brief history of Web Applications	Static HTML files only with HTML forms for input. Common Gateway Interface (CGI). Perl as language for writing CGI programs
2	Front End Programming	Review of Front End Programming frameworks. JavaScript. Node.js. Angular.js
3	Common Language Runtime in .NET Framework	Common Language Runtime. JIT-compiler. Programming languages in ASP.NET. ASP.NET development model.
4	Exploring the possibilities of Visual Studio	Multivariance. The Solution Explorer window. The document window. Toolbox window. ErrorList and TaskList windows. The Server Explorer window. The code editor.
5	Working with the code in Visual Studio	IntelliSense tool and structuring. The code model. Linking a separate code file to pages. Binding to events and event handlers. Create a web project. Debugging in Visual Studio. Macros in Visual Studio. Sessions. State management in ASP.NET.
6	Using Visual Basic.NET in Visual Studio Projects	Visual Basic in Web-forms. Variables. Data types. Arrays. Operators. Conditional structures. If commands. The case. Cyclic structures.
7	Procedures and Functions in Visual Basic	Structures of displacements. Procedures. Functions.
8	Event handlers in Visual Basic	Event Handlers. Block Try Catch. Errors.
9	OOP in Visual Basic	Classes. The new command. Inheritance. Useful functions of VB.NET
10	Generics in C#	Generics in the .NET Framework as the concept of type parameters. Design classes and methods with using Generics.
11	Delegates in C#	Class System.Delegate. Using delegates when in working with the C # / ASP.NET user interface.
12	Serialization	Binary Serialization. XML serialization. Using serialization in ASP.NET
13	SEO and ASP.NET sites	Writing an XML-SiteMap generation program for Google.
14	Download the ASP.NET to hosting	Download the ASP.NET project through the FileManager hosting provider and FTP protocol.
15	Using Amazon Web Services (AWS)	Download the ASP.NET project and setting up the database by AWS master

## 10. THE EVALUATION CRITERIA OF THE RESULTS ON A 10-POINT SCALE

A ten-point scale, depending on the grade and the mark, includes the following criteria:

### **10 (ten) points, passed:**

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline, as well as on major issues that go beyond its limits;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;

- perfect mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- the expressed ability independently and creatively to solve complex problems in non-standard situations;
- complete and profound studying of basic, additional literature on the subject of the discipline;
- the ability to freely navigate in theories, concepts and directions on the discipline and give them an analytical assessment, use the scientific achievements of other disciplines;
- creative independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

**9 (nine) points, passed:**

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently and creatively to solve complex problems in non-standard situations within the curriculum of the institution of higher education on the academic discipline;
- complete studying of basic, additional literature on the subject of the discipline, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- Systematic, active independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

**8 (eight) points, passed:**

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline (methods of complex analysis, information technology), the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently to solve complex problems within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- active independent work on practical, laboratory classes, systematic participation in group discussions, high level of the culture of performance of tasks.

**7 (seven) points, passed:**

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;

- free possession of generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them an analytical assessment;
- independent work on practical, laboratory classes, participation in group discussions, high level of the culture of performance of tasks.

**6 (six) points, passed:**

- sufficiently full and systematized knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of the necessary scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks.

**5 (five) points, passed:**

- sufficient knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions;
- mastering of the tools of the academic discipline, the ability to use it in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks;
- independent work on practical, laboratory classes, periodic participation in group discussions, sufficient level of the culture of performance of tasks.

**4 (four) points, passed:**

- sufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, logical statement of the answer to questions, the ability to make sound conclusions;
- ability to draw conclusions without essential errors;
- mastering of the tools of the academic discipline, the ability to use it in solution of standard (typical) tasks;



- ability to solve standard (typical) tasks under the guidance of a teacher;
- ability to navigate in basic theories, concepts and directions on the discipline and give them an assessment;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.

**3 (three) points, failed:**

- insufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- knowledge of a part of the basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, presentation of answers to questions with significant, logical errors;
- weak possession of the tools of the academic discipline, incompetence in solving standard (typical) tasks;
- inability to navigate in basic theories, concepts and directions on the discipline;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

**2 (two) points, failed:**

- fragmented knowledge within the educational standard of higher education;
- knowledge of individual literary sources, recommended by the curriculum of the institution of higher education on the discipline;
- inability to use scientific terminology of the academic discipline, the presence in the answer of errors, logical errors;
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

**1 (one) point, failed:**

- lack of knowledge and (competences) within the educational standard of higher education, failure to answer, failure to appear for attestation without good cause.

**11. METHODS AND MEANS OF IMPLEMENTATION OF THE CONTENT OF THE EDUCATIONAL PROGRAM AND TRAINING OF EDUCATIONAL, TRAINING AND METHODOLOGICAL MATERIALS**

The training will be conducted using distance learning technologies implemented in the eLearningServer. The students will be provided with electronic presentations of lectures, an electronic version of the handouts for practical studies.

In the classroom, students will learn the discipline directly in the computer class. The following software (software) will be used during the training:

№	The name of the software	System requirements for the specified software	№ of the topic from the educational and methodical map, for the support of which the specified software will be used	For what purpose will the software be used?
1.	MS Visual Studio 2013 - MS Visual Studio 2017	Processor: Pentium® IV is minimal, Intel Centrino®, Intel Xeon®, Intel Core™ Duo (or	Topics 1-8	To create ASP.NET projects. To edit HTML files.

		compatible) processor RAM: 4 GB RAM, 100 GB or more recommended Video: DirectX 9 64MB of VRAM recommended		
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The following tools and technologies were used in the preparation of training, teaching and methodological materials:

- MSOffice
- iSpring
- Internet services (LearningApps, etc.)
- Programs for recording and editing video
- Programs for data visualization (Infogr.am, etc.)
- Specialized software

## 12. THE INFORMATION-METHODICAL PART

### Main literature

1. Adam Freeman, Matthew MacDonald, Mario Szpuszta. Pro ASP.NET 4.5 in C# 7th Edition, Kindle Edition, 2013.
2. Matthew MacDonald, Beginning ASP.NET 4.5 in C# (Experts Voice in .Net) 1st ed. Edition, Kindle Edition, 2011
3. Andrew Troelsen , Philip Japikse. C# 6.0 and the .NET 4.6 Framework, 2016
4. Jess Chadwick, Todd Snyder, Hrusikesh Panda. Programming ASP.NET MVC 4: Developing Real-World Web Applications with ASP.NET MVC, 2012

### Additional literature

1. Galloway, J. Professional ASP.NET MVC 5 / J. Galloway [and others]. – Wilson, 2014.
2. Jamie Munro. ASP.NET MVC 5 with Bootstrap and Knockout.js: Building Dynamic, Responsive Web Applications / Jamie Munro. – O'Reilly Media, 2015.
3. John Kocer, JumpStart ASP.NET Core 2.0 and jQuery with Examples: .NET Core, C#, jQuery, Entity Framework Core, 2017.
4. Bruce Johnson. Professional Visual Studio, 2017.
5. Kindle Edition. .NET & XML: Understanding the Code and Markup Behind the Wizards 1st Edition, 2011.