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Computer Visions Course Outline

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#2717C: Introduction to Microsoft .NET Development

Description: This two-day instructor-led seminar provides students with an introduction to the technologies that comprise the Microsoft .NET strategy. This course is a high-level overview of multiple aspects of .NET, and is intended as a starting point for developers and business decision-makers to evaluate.NET tools and technologies. As an introductory seminar, it provides pointers to training courses and other resources that give more detail on specific topics.

Course Outline:

Module 1: Introduction to Microsoft .NET

This module provides students with an introduction to .NET. The module identifies problems with existing technologies that are solved by the .NET initiative, and describes the core services and features provided by the .NET Framework 2.0. After completing this module, students will be able to describe the features and benefits of using Web Services and the .NET Framework 2.0.

Lessons

- The Microsoft Application Platform
- Introduction to Web Services
- Inside the .NET Framework
- Introduction to .NET Languages
- Microsoft Developer Tools Roadmap

After completing this module, students will be able to:

- Describe how the Microsoft Application Platform simplifies development.
- Identify the features and benefits of Web Services.

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- Describe the core components of the .NET Framework.
- Describe how multiple languages are supported by the .NET Framework.
- Describe the Microsoft Developer Tools Roadmap.
- Describe the features and benefits of .NET.

Module 2: Using Visual Studio

This module shows how Visual Studio is a suite of programming tools that provide a complete development environment for building applications for the .NET platform. After completing this module, students will be able to describe the design goals, features, and benefits of using Visual Studio.

Lessons

- Introduction to Visual Studio
- Using Visual Studio for Windows Application Development
- Using Visual Studio for Web Application Development

After completing this module, students will be able to:

- Explain the design goals of Visual Studio.
- List the productivity features of Visual Studio.
- Describe the Visual Studio Rapid Application Development (RAD) tools.
- Understand how Visual Studio simplifies the Web application development process and shortens delivery time.

Module 3: Building ASP .NET Applications

This module describes building ASP applications with the .NET platform. After completing this module, students will be able to describe how ASP.NET can be used to develop enterprise-class Web applications, including those designed for mobile browsers.

Lessons

- Introduction to ASP .NET
- Using Web Forms
- Introduction to ASP.NET Mobile Web Applications
- Introduction to ASP.NET Application Services

After completing this module, students will be able to:

- Discuss the capabilities of ASP.NET and its implementation.
- Identify the important concepts of Web Forms and ASP.NET

server controls.
- Discuss the capabilities of ASP.NET Mobile Web Applications.
- Describe the features of the ASP.NET application services.

Module 4: Using ADO.NET

This module describes the newest version of the data access technology that is an evolutionary improvement to Microsoft ActiveX Data Objects (ADO). ADO.NET is a group of classes in the .NET Framework that integrates XML and ADO object models, and is designed for distributed applications that operating over the Web. After completing this module, you will be able to describe how to implement data services across enterprise-level applications using ADO.NET.

Lessons

- Introduction to ADO.NET
- The ADO.NET Object Model
- Using .NET Framework Data Providers

After completing this module, students will be able to:

- Describe ADO.NET and its architecture.
- Use the ADO.NET and DataSet objects.
- Use the .NET Framework data providers.

Module 5: Applying Object-Oriented Programming Concepts

This module describes how object-oriented programming techniques are available across .NET languages, and how the .NET common language runtime (CLR) provides features to simplify the development of reusable components. After completing this module, you will be able to define object-oriented concepts such as inheritance and describe how namespaces and assemblies can be used to increase efficiency in component development.

Lessons

- Introduction to Classes and Their Members
- Inheritance
- Namespaces and Assemblies

After completing this module, students will be able to:

- Define a class and identify its members.
- Identify how to implement inheritance in .NET.

- Describe how .NET relies on namespaces and assemblies.
- Describe how object-oriented programming concepts apply to .NET development.

Module 6: Developing Windows Applications

This module explains how to use existing forms and controls that are available for an application's user interface. After completing this module, you will be able to create forms and form templates, and describe how to utilize some advanced functionality of existing controls.

Lessons

- Introduction to Windows Applications
- Using Windows Forms
- Visual Inheritance

After completing this module, students will be able to:

- Describe the features of Windows Forms.
- Create a Windows Forms application.
- Create a form that inherits from another form.

Module 7: Using XML in .NET

This module explains how you can work with XML by using classes defined within the .NET Framework. After completing this module, you will be able to explain the role of XML classes in the .NET Framework, describe how ADO.NET takes advantage of the power of XML to provide disconnected access to data, and retrieve and write XML data. You will also use the XML Designer to create and edit XML source code and XML Schema Definition (XSD) schemas.

Lessons

- XML in .NET
- Using the XML Designer
- ADO.NET and XML

After completing this module, students will be able to:

- Explain the role of XML classes in the .NET Framework.
- Describe how ADO.NET takes advantage of the power of XML to provide disconnected access to data.
- Retrieve and write XML data.
- Use the XML Designer to create and edit XML source code

and XSD schemas.

Module 8: Web Services

This module describes a simple, standards-based model for binding applications together over the Internet by using Web services. After completing this module, you will be able to describe how to create, implement, deploy, secure, and consume a Web service.

Lessons

- Introduction to Web Services
- Creating and Implementing Web Services
- Deploying and Securing Web Services
- Consuming Web Services
- Web Services Enhancements

After completing this module, students will be able to:

- Identify Web Services.
- Design a Web service.
- Create and implement an Web service.
- Deploy and secure an Web service.
- Access an Web service from a client application.

Module 9: Security in .NET

This module describes the core security features provided by the .NET Framework. After completing this module, you will be able to explain how to implement authorization and authentication for applications created within the framework. You will also be able to identify additional security measures and tools provided by the framework.

Lessons

- Code-Based Security
- Role-Based Security
- Additional Security Measures

After completing this module, students will be able to:

- Understand code-based security.
- Understand role-based security.
- Implement the security mechanisms provided by the .NET Framework.
- Understand how the .NET Framework handles authorization and authentication.

- Identify the additional security measures and security tools provided by the .NET Framework.

Module 10: Configuring and Deploying .NET-Based Applications

This module describes how the .NET Framework and the CLR help you to configure and deploy self-described, self-contained applications. After completing this module, you will be able to describe how to use assemblies and the global assembly cache to configure and deploy applications.

Lessons

- Configuring .NET Framework Applications
- Using Assemblies in .NET Framework Applications
- Deploying .NET Framework Applications

After completing this module, students will be able to:

- Identify important concepts of configuring .NET Framework applications.
- Identify the role of assemblies and the global assembly cache in configuring and deploying .NET applications.
- Deploy .NET Framework applications.
- Describe how to configure and deploy .NET assemblies.

Module 11: COM Interoperability

This module explains how Microsoft Visual Studio helps you to enhance the reliability of your applications by using managed code. After completing this module, you will be able to call Component Object Model (COM) components from the .NET Framework, and call .NET Framework components from COM.

Lessons

- Introduction to Application Interoperability
- Calling COM Objects from .NET
- Calling .NET Components from COM
- Using Platform Invoke

After completing this module, students will be able to:

- Describe the role of interop services with reference to the .NET Framework.
- Call COM components from the .NET Framework.
- Call the .NET Framework components from COM.

- Describe how to use Platform Invocation Services (PInvoke) to call unmanaged functions implemented in DLLs.

Module 12: Developing with Microsoft SQL Server 2005

This module describes the .NET features included with SQL Server 2005 that help build robust data-centric applications.. The latest version of Microsoft's enterprise-class database management systems includes tight integration with .NET and a host of features designed to enhance programmability.

Lessons

- Introduction to SQL Server 2005
- Programming SQL Server
- Working with XML
- Introducing SQL Server Service Broker

Module 13: Introduction to Visual Studio Team System

This module introduces Microsoft Visual Studio Team System, an integrated software development platform that combines role-based tools with process guidance. Visual Studio Team System can replace a number of software packages that separately track requirements and defects, manage builds, and keep source code safe. Best of all, Visual Studio Team System helps to reduce friction and enhance communication between roles on a project.

Lessons

- Understanding the Visual Studio Team System Components
- Using Team System for Requirements and Design
- Programming with Team System
- Quality Assurance with Team System