# MICROSOFT COMPUTER SCIENCE (DEVELOPMENT) TRACT (MTA, MCSD)

Computer science involves the understanding and design of computers processes. The field includes a wide range of specialties including computer architecture, software systems, graphics, artificial intelligence, computational science, and software engineering. Each specialty focuses on a particular challenge. It will teach you about the structure and capabilities of a computer focusing on the theory of computers and the design of computer systems. This will lead to an understanding of what computers are actually able to do and how to manipulate a computer to execute various tasks.

For those intending to build a career as a web or software developer, this development track helps prepare you for hands-on product training and MCSD certification. A qualifying student will be able to communicate effectively with fellow IT staff & users of information technology, understanding the role of technology in a business context and to be able to address business problems with appropriate information technology solutions.

The Microsoft Computer Science (Development) Tract consists of the following study path:


**Microsoft Technology Associate (MTA):** This is an introductory Microsoft development certification for individuals considering a career in technology. MTA certification addresses a wide spectrum of fundamental technical concepts, assesses and validates your core technical knowledge, and enhances your technical credibility.

**Microsoft Certified Solutions Developer (MCSD):** Get recognized for your expertise in creating and developing modern web applications and services by earning the Microsoft Certified Solutions Developer (MCSD): Web Applications and the Microsoft Certified Solutions Developer (MCSD): Universal Windows Platform Certification.

## CAREER OPPORTUNITIES

This is for IT Professionals intending on building a career as a:

- Web developer
- Web administrator
- Web programmer

## COURSE DURATION

Based on contact hours as determined by the accreditation body and based on HC Varsity course progression structure and schedule to complete the MTA and the MCSD – Web Applications will take:

- Full Time – approximately 1 and a half years
- Part Time – approximately 2 years
- Distance Learning – approximately 2 years

## ENTRANCE REQUIREMENTS

- MTA: individuals must have basic computer skills
- MCSD: It is a prerequisite that individuals have successfully completed the Microsoft Technology Associate (MTA) – Developer exams
- Access to a computer

## COURSE CONTENT

| **MICROSOFT TECHNOLOGY ASSOCIATE – (MTA) DEVELOPER** |
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| 361 – SOFTWARE DEVELOPMENT FUNDAMENTALS |
| • Introduction to Object-Oriented Programming<br>• Understanding General Software Development<br>• Understanding Web Applications<br>• Understanding Desktop Applications<br>• Understanding Databases |
| 375 – HTML5 APPLICATION DEVELOPMENT FUNDAMENTALS |
| • Managing the Application Life Cycle<br>• Building the User Interface by Using HTML5: Text, Graphics, and Media<br>• Building the User Interface by Using HTML5: Organization, Input, and Validation<br>• Understanding CSS Essentials: Content Flow, Positioning, and Styling<br>• Understanding CSS Essentials: Layouts<br>• Managing Text Flow by Using CSS<br>• Managing the Graphical Interface by Using CSS<br>• Understanding JavaScript and Coding Essentials<br>• Creating Animations, Working with Graphics, and Accessing Data<br>• JavaScript Coding for the Touch Interface, Device and Operating System Resources, and More |
| **MICROSOFT CERTIFIED SOLUTIONS DEVELOPER - (MCSD) WEB APPLICATIONS** |
| 480 – PROGRAMMING IN HTML5 WITH JAVASCRIPT AND CSS3 |
| • Overview of HTML and CSS<br>• Creating and styling HTML5 Pages<br>• Introduction to JavaScript<br>• Creating Forms to Collect Data and Validate User Input<br>• Communicating with a Remote Data Source<br>• Styling HTML5 by Using CSS3<br>• Creating Objects and Methods by Using JavaScript<br>• Creating Interactive Pages using HTML5 APIs<br>• Adding Offline Support to Web Applications |

- Implementing an Adaptive User Interface
- Creating Advanced Graphics
- Animating the User Interface
- Implementing Real-Time Communications by Using Web Sockets
- Creating a Web Worker Process

486 – DEVELOPING ASP.NET MVC 4 WEB APPLICATIONS

- Exploring ASP.NET MVC4
- Designing ASP.NET MVC 4 Web Applications
- Developing ASP.NET MVC 4 Models
- Developing ASP.NET MVC 4 Controllers
- Developing ASP.NET MVC 4 Views
- Testing and Debugging ASP.NET MVC 4 Web Applications
- Structuring ASP.NET MVC 4 Web Applications
- Applying Styles to ASP.NET MVC 4 Web Applications
- Building Responsive Pages in ASP.NET MVC 4 Web Applications
- Using JavaScript and jQuery for Responsive MVC 4 Web Applications
- Controlling Access to ASP.NET MVC 4 Web Applications
- Building a Resilient ASP.NET MVC 4 Web Application
- Using Windows Azure Web Services in ASP.NET MVC 4 Web Applications
- Implementing Web APIs in ASP.NET MVC 4 Web Applications
- Handling Requests in ASP.NET MVC 4 Web Applications
- Deploying ASP.NET MVC 4 Web Applications

487 – DEVELOPING WINDOWS AZURE AND WEB SERVICES

- Overview of service and cloud technologies
- Querying and Manipulating Data Using Entity Framework
- Creating and Consuming ASP.NET Web API Services
- Extending and Securing ASP.NET Web API Services
- Creating WCF Services
- Hosting Services
- Windows Azure Service Bus
- Deploying Services
- Windows Azure Storage
- Monitoring and Diagnostics
- Identity Management and Access Control
- Scaling Services
- Appendix A: Designing and Extending WCF Services
- Appendix B: Implementing Security in WCF Services

**MICROSOFT CERTIFIED SOLUTIONS DEVELOPER - (MCSD) UNIVERSAL WINDOWS PLATFORM**

483 – PROGRAMMING IN C#

- Building new data types
- Handling events
- Programming the user interface
- Accessing a database
- Using remote data

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|---|
| • Performing operations asynchronously<br>• Integrating with unmanaged code<br>• Creating custom attributes<br>• Encrypting and decrypting data |
| 354 – UNIVERSAL WINDOWS PLATFORM – APP ARCHITECTURE AND UX/UI |
| • Create the design specification for a mobile line-of-business (LOB) app<br>• Implement application lifecycle management processes<br>• Develop an LOB app that supports windowing, adaptive layout, and in-app navigation<br>• Develop an LOB app that supports user input and user interactions<br>• Test and deploy an LOB app |
| 355 – UNIVERSAL WINDOWS PLATFORM – APP DATA, SERVICES AND CODING PATTERNS |
| • Recognize and apply a specified design pattern<br>• Develop app and business logic, code that interfaces with other line-of-business (LOB) apps, and LOB Server Services (AD, SP)<br>• Develop code for implementing secure cloud data services and storage<br>• Develop code to implement authentication and business security requirements<br>• Integrate cloud services and Azure App Service services<br>• Develop code that is maintainable and that supports app versioning, compatibility, and coexistence |

## ASSESSMENTS

This course is assessed by CERTIPORT and Pearson VUE through HC Varsity which is an accredited testing Centre. HC Varsity can also offer practice tests to prepare the learner for the final exam.

## CERTIFICATION

On successful completion of the international online examinations you will be awarded the following Certification:

- Microsoft Technology Associate (MTA) – Developer
- Microsoft Certified Solutions Developer (MCSD) – Web Applications
- Microsoft Certified Solutions Developer (MCSD) – Universal Windows Platform

This MCSD certification requires you to show continued ability to perform in your chosen solution area by completing a recertification exam every two years.

## FURTHER STUDIES

After successful completion of the course, there are several career paths that you may specialise in. Please contact HC Varsity for further information.