Cloud App Development – Learning Objectives v1.2

January 4, 2022

Pre-Requisites

- College Algebra or Equivalent
- SMU Math Exam
- GitHub

Outcomes

- Object-Oriented Programming.
- Understanding Software Development.
- Understanding Web Applications.
- Understanding Desktop Applications.
- Understanding Databases.

CSC 205: Programming in C#

- Explain core programming fundamentals (variables, control structures, data structures, syntax, and object-oriented programming concepts).
- Create/use decisions structures in computer program.
- Create/use repetition (loops) in a computer program.
- Explain pseudocode and its role in programming.
- Computer data structures (arrays/lists/stacks/queues).
- Implement object-oriented programming concepts.
- Create and use classes in a computer program.
- Implement encapsulation/inheritance/polymorphism.
- Describe the BCL in the .NET Framework.
- Identify, debug and handle application errors.
- Identify the performance considerations for applications.

CSC 305: SQL and Application Development

- Comprehend the concept of a data structure.
- Comprehend the techniques of algorithm analysis, such as best case, worst case, and average case.
- Analyze and compare code using algorithm analysis.
- Comprehend and implement the working process of sequential search and binary search.
- Comprehend and implement the working process of bubble sort, selection sort, insertion sort, merge sort, and quicksort.
- Comprehend and implement array lists, linked lists, stack, and queues.
- Comprehend and implement the working process of merge sort, heap sort, and quicksort using recursion.
- Comprehend and implement binary search trees.
- Comprehend and implement graphs and related algorithms.

CSC 340: Data Structures and Algorithms

- Write Transact-SQL SELECT queries and modify data.
- Query multiple tables using joins.
- Implement functions & aggregate data.
- Group and pivot data using queries.
- Implement data types and NULLs.
- Query temporal data & non-relational data.
- Query data, subqueries, APPLY & table expressions.
- Create database programmability objects using T-SQL.
- Implement error handling and transactions.

CSC 230: Web Dev HTML5,
CSS3 and JavaScript, ASP.NET

- Create webpages using HTML5, add styling using CSS
- Use JavaScript to add interactivity to an HTML5 page.
- Creating Forms to Collect and Validate User Input.
- Design an ASP.NET Core MVC Web Application.
- Configure Middleware and Services in an ASP.NET Core Web Application.
- Develop Controllers in an ASP.NET Core Web Application.
- Develop Views in an ASP.NET Core Web Application.
- Use Entity Framework Core to add persistent data to an ASP.NET Core Web Application.
- Using Layouts, CSS and JavaScript in an ASP.NET Core Web Application.
- Implement Simple Authentication in an ASP.NET Core Web Application.

CSC 160: Computing Technologies
(Python/Discrete Math)

- A computationally intensive approach to essential mathematics for computer science students.
- Learn usage with Sage and Python.
- Key topics from pre-calculus and discrete/finite mathematics.
- Tailored to prepare students for data structures and algorithms.
- Supports and reinforces basic programming logic.

CSC 457: Developing Cloud Solutions

- Create containerized solutions.
- Develop Azure PaaS Compute Solutions using App Service web, mobile & API apps.
- Implement Azure Functions.
- Develop Azure Storage Solutions.
- Develop solutions that use a relational database.
- Implement Azure Security using authentication, access control & secure data solutions.
- Develop code to support scalability of apps & services.
- Implement Azure monitoring & logging solutions.
- Integrate caching & content delivery within solutions.
- Develop event-based and message-based solutions.
Pre-Requisites

- College Algebra or Equivalent
- SMU Math Exam

Outcomes

- Network architecture.
- Network operations.
- Network security.
- Troubleshooting.
- Industry standards, best practices & network theory.

CSC 160: Computing Technologies (PowerShell)
- Describe Windows PowerShell functionality & run cmdls.
- Identify and run cmdlets for server administration.
- Work with Windows PowerShell pipeline.
- Describe techniques Windows PowerShell pipeline uses.
- Use PSPS providers & PSDrives with other forms of storage.
- Query system information by using WMI and CIM.
- Work with variables, arrays, and hash tables.
- Write basic scripts in Windows PowerShell.
- Write advanced scripts in Windows PowerShell.
- Administer remote computers.
- Use background jobs and scheduled jobs.
- Use advanced Windows PowerShell techniques.

CSC 235: Linux Administration
- Provision and maintain Linux Infrastructure.
- Gain an understanding of Linux commands and architecture.
- Work at the command line to install, update, and configure system components.
- Learn standards and management for user and file permissions.
- Understand fundamentals of system security, performance, and maintenance.
- Explore the implementation of tools for automating these practices.

CSC 330: Networking and Server Fundamentals
- Introduce the OSI Model.
- Understanding: LAN, Wired & Wireless Networks, IP, & WAN.
- Defining Network Infrastructure & security.
- Install and configure DNS servers & IPAM.
- Create and configure DNS zones & records.
- Install, configure and manage DHCP.
- Implement: Network VPN connectivity solution.
- IPv4/IPv6 addressing solutions, VLSM, subnetting.
- Develop high-performance network solutions.
- Identify scenarios/requirements for implementing SDN.

CSC 331: Windows Server Configuration and Management
- Install/config. domain controllers, AD CS, AD FS, & AD RMS.
- Create/manage AD users, groups, OUs, & computers.
- Configure service authentication & account policies.
- Maintain Active Directory.
- Configure AD in a complex enterprise environment.
- Create and manage GPOs.
- Config Group Policy processing, settings & preferences.
- Manage certificates & Implement WAP.

CSC 332: Configuring Advanced Windows Server Services (Server 2019)
- Use administrative techniques and tools in WS2019.
- Implement identity Services.
- Manage network infrastructure services.
- Configure file servers and storage.
- Manage VMs using Hyper-V virtualization & containers.
- Apply security features to protect critical resources.
- Configure Remote Desktop Services.
- Implement remote access and web services.
- Implement service/performance monitoring & apply troubleshooting.

CSC 456: Configuring and Deploying Cloud Technologies
- Manage Azure subscriptions.
- Create and scale virtual machines.
- Implement storage solutions.
- Configure virtual networking.
- Back up & share data using Data Services.
- Connect Azure & on-premises sites.
- Implement Azure Active Directory.
- Monitor Azure infrastructure.
- Manage network traffic.
- Secure identities.

Microsoft Certified: Azure Administrator Associate

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Windows VETS2TECH

Server Cloud Administration – Learning Objectives v1.2

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