Cloud App Development – Learning Objectives

**Pre-Requisites**

- College Algebra transcripts
- Math placement test available online

**Outcomes**

- Perform Operations using Data Type and Operators
- Control Flow with Decisions and Loops
- Perform Input and Output Operations
- Perform Troubleshooting and Error Handling
- Perform Operations using Modules and Tools
- Modern Application Development with Python on AWS Specialization

**Certification Opportunities**

- Introduction to Server-Side Development
- Data Storage with NoSQL
- User Authentication
- Secure Communication using HTTPS
- Full stack web development with React
- Group Server Project

**CSC 160: Computing Technologies (Python/Introduction To Programming)**

- Open-Source Software Development Methods
- Linux for Developers
- Working at the command line
- Filesystem layout, partitions
- Monitoring utilities
- Linux Tools for Developers
- Building packages out of software in Linux
- Using Git for Distributed Development
- How to make changes in a repository
- How to make changes in repositories available to others
- How to acquire changes made by other individuals
- How to find errors in your work and go back to earlier states of your projects
- How to make commits, diffs, merges, rebases

**CSC 235: Linux Development/Networking (From a Developer perspective)**

- 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 370: Principles of Programming Languages (Java/Object Oriented Programming)**

- Work with Java data types: primitives, operators, type promotion and casting
- Control program flow using loops, if/else, and switch statements
- Work with arrays and collections
- Develop secure code in Java to mitigate security threats
- Learn Java Platform Module System: declare, use, and expose modules
- Object-oriented approach using classes, Inheritance, Interfaces, and variable scopes
- Understand the importance of and utilize polymorphism and casting to call methods
- Work with streams and lambda expressions to filter, transform and process data

**CSC 205: SQL and Application Development**

- Introduction to Server-Side Development
- Data Storage with NoSQL
- User Authentication
- Secure Communication using HTTPS
- Full stack web development with React
- Group Server Project

**CSC 395: Server-Side Development (Python/Java)**

- Develop & implement AWS compute solutions using VMs, batch jobs, and by using batch services
- Create containerized solutions
- Implement AWS Functions
- Develop AWS Storage Solutions
- Develop solutions that use a relational database
- Implement AWS Security using authentication, access control & secure data solutions
- Develop code to support scalability of apps & services
- Implement AWS monitoring & logging solutions
- Develop App Service Logic Apps, integrate AWS search within solutions, and add-in third-party services
- Learn about event-based and message-based solutions
Pre-Requisites

- College Algebra transcripts or Math placement test available online

Outcomes

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

Certification Opportunities

- CSC 160: Computing Technologies (Introduction to Computer Science)
  - Perform Operations using Data Type and Operators
  - Control Flow with Decisions and Loops
  - Perform Input and Output Operations
  - Document and Structure Code
  - Perform Troubleshooting and Error Handling
  - Modern Application Development with Python on AWS Specialization

- CSC 325: 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: Server Administration & Configuration (IAM/Linux Admin LDAP/Active Directory)
  - 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 WAF

- CSC 332: Configuring Linux/Windows Server Services (Server 2022)
  - Use administrative techniques and tools in WS2022 and Linux
  - 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
  - Create and scale virtual machines
  - Implement storage solutions
  - Configure virtual networking
  - Back up & share data using Data Services
  - Connect to the cloud & on-premises sites
  - AWS CDK
  - AWS Identity and Access Management
  - Monitor infrastructure
  - Manage network traffic
  - Secure identities

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### Core
- Explain the concepts of computer networking, the protocols & their operation & security implications.
- Explain interaction of app programs with both the host & their use of network resources securely.
- Assess systems & applications security/performance using tools to monitor & analyze resources.

### Advanced
- Apply the concepts of vulnerability, threat & risk to info. systems planning, operation and support.
- Discuss roles government agencies (NIST, DHS, etc.), have in the overall process of cyber planning & implementation.
- Demonstrate how NIST Cybersecurity Framework is used in planning/assessing info. Sys. security plans & programs.
- Relate national security implications of cybersecurity & info. infrastructure protection to individual/private sector needs for info. security & assurance.
- Identify key legal, ethical & regulatory elements that bare on cybersecurity planning & implementation.

### Pre-Requisites
- College Algebra transcripts or Math placement test available online
- CompTIA A+ / Net+ (or similar cert) or 1-3 years of IT Experience

### Outcomes
- Understand physical security principles, Internet & wireless security
- Understand user authentication, permissions, password & audit policies, encryption & malware
- Understand dedicated firewalls, network isolation & protocol security
- Understand server, web & cloud protection

### Certification Opportunities
- Linux+
- CompTIA Security+
- AWS Solutions Architect Associate

### Courses

**CSC 345: Advanced Networking**
- Net Security

**CSC 495: Kali Linux/Ethical Hacking**
- CompTIA Linux+ Exam Preparation

**CSC 160: Computing Technologies**
- Python/PHP

**CSC 162: OS, App, Web Security**
- CompTIA Sec+ Exam Preparation

**CSC 364: Cybersecurity Threat Intelligence**

**CSC 395: Managing Identity & IAM**
- AWS Solutions Architect
The Career Development Managers (CDM) for the Washington Veterans to Tech (WaV2T) program are responsible for the job placement function for a cohort of WaV2T students.

Our CDMs also maintain relationships with employers, and graduates of the WaV2T program, managing the social network of this specialized community.

- **Resumes**
  - Translating military experience
  - Personal assessment
  - Target Resumes

- **Cover Letters**
  - Personalization
  - Selling yourself

- **Virtual Presence**
  - LinkedIn
  - Personal branding
  - Social Media

- **Job Search**
  - Target job market
  - Hiring managers
  - Recruiters

- **Interview skills**
  - Research Company
  - Mock Interviews
  - Negotiations
  - Job offers
LabSim is TestOut's learning platform. It delivers our certifications and courses, including our best-of-class IT simulations. It also provides tools for educators to manage and assess student learning. The LabSim courses keep students engaged and allow them to monitor their progress. LabSim is a flexible and cost-effective solution for IT education.

**OVERVIEW**

**SIMULATION LABS**
Our IT simulations provide the best way for students to practice real-world IT skills. Using integrated hardware and OS simulations, students face IT tasks that they will encounter on the job and are given immediate feedback to help them improve quickly.

**TEXT LESSONS**
In LabSim, all key information is outlined and summarized in our text lessons. These lessons allow students to quickly learn or review practical knowledge they need to know in their professional careers.

**SECTION QUIZZES AND EXAMS**
Section quizzes and exams are designed to reinforce key concepts taught in our video and text lessons. These questions can also be used to make sure students have understood the required topics.

**PERFORMANCE REPORTS**
LabSim allows students to review their performance on their simulation labs and section exams. Students can use these reports to identify their strengths and weaknesses and improve their overall learning.

**EXPERT INSTRUCTION**
Our team of instructors teach key information using multiple instructional methods to make sure students are engaged and fully understand materials. These methods include technology demonstrations, example illustrations, concept animations, and whiteboard discussions.

**INTERACTIVE VIDEO CONTROLS**
LabSim's video player allows students to adjust playback speed, jump to a specific segment, or read the video script while a video is playing. This gives students the ability to customize their learning experience.

**CERTIFICATION PRACTICE EXAMS**
Our practice exams fully prepare students for industry certification exams. Not only are they prepared for fact-based exams, they'll be ready for TestOut Pro certification exams, which are 100% skills-based.