Wake Technical Community College
Computer Technologies Division Syllabus

Course Number: CSC-227
Course Title: Cloud Application Development

Textbook Information
(Opens in **Barnes & Noble** Search window)

http://waketech.bncollege.com/webapp/wcs/stores/servlet/TBWizardView?catalogId=10001&langId=-1&storeId=65227

Online and Hybrid Course Information
Students in Curriculum Education Online and Hybrid courses **must complete the Course Entry Quiz** *during the first 10% of the course. The quiz can be found on the course's Blackboard site on the first day of class. Students who fail to complete the quiz within the required time frame will be immediately marked as "NA" (Never Attending) and* **dropped from the class**. **This class may include at least one proctored assignment and/or test that will require attendance at a testing center or an approved proctored location.**

Course Description:
This course introduces how to build, deploy, host, and manage applications using cloud technologies. Topics include building cloud applications using cloud toolsets, defining and managing service models, storage fundamentals, secure backup system and database programming. Upon completion, students should be able to develop and host cloud applications, as well as design and develop services that access local and remote data from various data sources

Software Used to Complete Coursework:
- PC or Mac with an Internet web browser (IE or Google Chrome)
- Microsoft Visual Studio
- Cloud subscription is needed to complete the assignments as follows:
  1. AWS (Amazon Web Services System).
  2. Microsoft Azure.
  3. Google Cloud Platform.

Other Required Equipment:
N/A

Special Instructions:
Course Entry Quiz (Online Classes)
Students in Curriculum Education Online and Hybrid courses must complete the Course Entry Quiz during the first 10% of the course. The quiz can be found on the course's Blackboard site on the first day

of class. Students who fail to complete the quiz within the required time frame will be immediately marked as "NA" (Never Attending) and dropped from the class.

Credit Hours:	Three (3) Semester Hour
Pre-requisites:	None
Co-requisites:	None

Course Goals:

1. Provide basic knowledge of cloud computing technologies and components and introduce cloud computing architecture.
2. Use commercial cloud offerings – Amazon, Microsoft Azure, Google including cloud applications and tools.
3. Provide hands-on experiences in can follow to learn how to create virtual networks, websites, storage accounts, databases, and applications.
4. Upon completion, students should be able to understand clouds concepts and able to use vendors to create instances of servers and configure needed applications.

Student Learning Outcomes:

Upon successful completion, students will be able to demonstrate (through completion of class work and assignments):

- Understand the cloud computing technologies.
- Identify the cloud components, Service and the Deployment Models.
- Explain Virtualization.
- Describe the pay-per-use monitor mechanism and explain how it relates to cloud provider billing.
- Use commercial cloud offerings – Amazon, Microsoft Azure, Google including cloud applications and tools.
- Create an account, server instances, and storages.
- Use and understand the Database instances.
- Understand the Cloud Security.
- Use different development tools within the cloud.

Grading:

Grading Is As Follows		
Discussion Board Participation	10%	Attendance, class participation, etc.
Labs	30%	Six labs assignments per schedule
Quizzes	10%	Six quizzes per schedule

Projects	50%	**Two Projects (25% each)**

Subject Areas:
Note: The order in which these subject areas are presented may be changed/modified by your instructor. This list is offered only as a guide. The pace of each class differs according to the instructional needs of the students in the class. Always consult with your instructor.

Week /Lesson	Lesson Subject	Lesson Topics	Text Chapter
1	**Introduction to Cloud Computing**	Definition of Cloud Computing Technologies Understanding Cloud Models & Applications. Service Models Deployment Modes	Chapter 1 Handout
2	**Cloud Model Concepts and Technologies**	Virtualization Load balancing Scalability Billing	Chapter 2 Handout
3	**Use of Commercial Cloud offerings – Amazon Part 1** Get started with AWS (Amazon Web Services System)	Create an account with AWS Identity Access Management (IAM) Creating server instances	Handout AWS documents
4	**Use of Commercial Cloud offerings – Amazon – Part 2** Creating storage in AWS	Creating storage in AWS Amazon Simple Storage Service (S3) S3 - Security & Encryption	Handout AWS documents
5	**Use of Commercial**	AWS Databases 101	Handout AWS

	Cloud offerings – Amazon Part 3 Creating Database in AWS	Launching an RDS Instance - Lab RDS - Backups, Multi-AZ & Read Replicas DynamoDB RedShift	documents
6	**Use of commercial cloud offerings – Microsoft Part 1** Getting started with Microsoft Azure	Create an account with Azure Resource Manager Dashboard and hub Viewing billing in the Azure portal	Chapter 1 (textbook 2) Azure documents
7	**Use of Commercial Cloud offerings – Microsoft Part 2** Creating Azure Virtual Machines	Virtual machine models. Virtual machine components	Chapter 3 (textbook 2) Azure documents
8	**Use of Commercial Cloud offerings – Microsoft Part 3** Creating Azure Storage and Databases	Azure Storage Blob storage File storage Table storage Queue storage	Chapter 4 (textbook 2) Azure documents
9	**MID-TERM PROJECT**		
10	**Use of Commercial Cloud offerings – Google Cloud Platform**	Introducing Google Cloud Platform Google App Engine and Google Cloud Datastore Getting Started with BigQuery	Google Cloud documents
11	**Cloud Application Design**	Scalability Reliability and availability Security	Chapter 5

		Design Methods	
12	**Big Data Analytics**	Clustering Big Data K-means clustering Classification of Big Data	Chapter 9
13	**Multimedia Cloud**	Streaming Protocols HTTP Streaming Other Streaming	Chapter 10
14	**Cloud Application Benchmarking and Tuning**	Trace collection Workload Modeling User Emulation Benchmark tools for the clouds	Chapter 11
15	**Cloud Security**	Security 101 SSO Authorization Data Security Encryption	Chapter 13
16	**Final Project**		

Employability Skills:

Each student will be evaluated based on whether he or she demonstrates the skills that make them employable in their field. These skills may include, but are not limited to: promptness, presence, verbal articulation of subject matter concepts, quality of written communications, respect for their instructor, respect for their classmates, honorable presentation of original work, gracious acceptance of constructive criticism, attention to detail, and a dedication to excellence in their academic goals. These employability skills are direct reflections of the Wake Tech's Core Values. Ask your individual instructor about how employability skills will affect your grade, and your ability to work in your chosen field once you have completed your academic goals.

Classroom Policies

- Students are responsible for all of the information presented in the Wake Technical Community College Student Handbook
- Please note that computers are to be used at all times for official course purposes.

- Use of computers for general web surfing, e-mailing, chat room discussions, social networking, and any other non-course related task is forbidden. Violation of this rule will result in a grade deduction and possible loss of computer privileges.
- The college forbids the use of all audible electronic equipment during instructional time.
- Forbidden devices include but are not limited to: cell phones, smart phones, MP3 players, tablets, and PDAs.
- If you miss a lecture or arrive late, you are responsible for the material presented, handouts distributed, and any announcements made that day. The instructor will not provide notes for missed classes.

The Core Values of Wake Technical Community College
(Opens in a new window)
https://www.waketech.edu/catalog/history-statement-values-and-accreditation

Student Code of Conduct, Rights, and Responsibilities
(Opens in a new window)
https://www.waketech.edu/catalog/student-code-conduct-rights-and-responsibilities

Disability Support Services (DSS)
Disability Support Services (DSS) is available for students who require academic accommodations due to any physical, psychological, or learning disability. To determine eligibility, contact the office at 919-866-5670. Wake Technical Community College strives to make its websites accessible and usable for people of all abilities. We continue to make improvements and enhancements to our website accessibility features. If you find a feature that is not accessible, or if you have an immediate need, please contact accessibility@waketech.edu.