ITIS 180C: COMPUTE ENGINES IN AMAZON WEB SERVICES

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2022
Credits:	3
Total Contact Hours:	54
Lecture Hours :	54
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	ITIS 180A; CS 140 or CS 112.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Standard Letter

Catalog Course Description

In this course, students explore how cloud computing systems are built using a common set of core technologies, algorithms, and design principles centered around distributed systems. Students will use the Amazon Web Services (AWS) Management Console to provision, load-balance and scale their applications using the Elastic Compute Cloud(EC2) and the AWS Elastic Beanstalk. The course discusses, from a developer perspective, the most important reasons for using AWS and examines the underlying design principles of scalable cloud applications. 54 lecture hours.

Course Objectives

- Describe important design consideration for scalable cloud applications
- · Describe the architectural approach used by AWS
- Navigate the AWS Management Console
- · Describe the architectural approach used by AWS' Elastic Beanstalk
- Deploy and manage Elastic Beanstalk applications
- · Scale and Load-Balance cloud application using AWS tools
- · Deploy EC2 Servers and work with various Amazon Machine Images

Major Course Content

- 1. Introduction to AWS and the Management Console, Regions and Availability Zones
- 2. Design Principles for Cloud Applications and Best Practices
- 3. Architectural Overview of AWS and the Elastic Beanstalk Approach
- 4. Working With The Elastic Beanstalk
- 5. Configuring Auto-Scaling and Load Balancing
- 6. Working With A Git Repository and the EB CLI
- 7. Deploying A Server With The EC2 Dashboard
- 8. Configuring An Amazon Machine Image (AMI)
- 9. Monitoring and Logging with Cloud Watch

Examples of Outside Assignments

Design and write code to implement a tic-tac-toe game using loops that support the AWSConsole and Deployment API. 1. create a new Amazon EC2 server instance from an existing server template 2. create a new security group to restrict access to the server's resource 3. launch the instance 4. access the instance's command-line interface directly, using a key pair for authentication 5. associate an elastic IP address with this EC2 instance 6. deploy code into this EC2 instance that implements this game 7. access the game from a javascript web page that connects via the EC2 instance and its elastic IP address

Instruction Type(s)

Lecture, Online Education Lecture