General Syllabus

CS 4133 Cloud Applications Development

Credit Hours: 3  Lecture Hours: 3  Laboratory Hours: 0

Prerequisites: CS 2033 Web Systems

Effective: Summer I 2014

I. Course Information

A. Catalog Description
Cloud architecture, application development and the technologies used to create and deliver them. Cloud application development and design using existing Cloud development tools.

B. Additional Course Information
Whether it is a social network site, an online store, or a custom application, IT applications are increasingly web-based. The cost of acquiring the hardware and services will become increasingly costly for businesses. This course provides an introduction to designing and authoring business systems with the "systems as a service" environment as well as researching existing implementations.

II. Student Learning Outcomes

A. Subject Matter

1. Describe the technical foundations of Cloud Computing.
3. Describe the different technologies that enable Cloud Computing.
4. Describe and use Cloud Computing with MapReduce using Hadoop on Amazon's EC2 (with Cluster GPU Instances).
5. Describe how different algorithms can be implemented and executed in the Hadoop framework.
6. Describe and use existing languages for the Cloud Framework.
7. Describe and use the processes in evaluating performance and identifying bottlenecks when mapping applications to the Cloud.
8. Describe the Cloud Computing security and trust management.
B. University Learning Outcomes

Analytical Skills
Students will utilize analytical skills to identify a problem, break it down into its component parts and develop a solution.

Technological Skills
Students will use computerized tools (text editors, integrated development environments, compilers, web servers, and browsers) to create, analyze, process, and display electronic information.

Quantitative Skills
Students will use quantitative skills including scalable algorithm design and access of parallel services for massive concurrency to performance analyses and scientific visualization to analyze complex data for problem solving.

III. Major Course Topics

A. Basic Cloud concepts
B. Clout Architecture Framework
C. Existing technologies
D. Performance
E. Vulnerabilities and security