COURSE INFORMATION FORM

DISCIPLINE: Computer Science Information Systems
COURSE TITLE: Virtualization and Cloud Computing Concepts

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CATALOG DESCRIPTION
This course covers a variety of technologies found on modern networks. Topics include data center infrastructure, cloud computing, virtualization, virtual networks, remote management, and network troubleshooting. Students will gain experience implementing and managing virtual data center components using industry standard tools. Students will also gain exposure to current and advanced topics in cloud computing.

PREREQUISITES
CSIS 230 with a grade of C or better (or concurrent enrollment)

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:

1. Describe components of modern datacenter infrastructure.
2. Describe modern cloud computing concepts.
3. Describe and apply client side and datacenter virtualization fundamentals.
4. Describe and apply virtual infrastructure design considerations.
5. Implement components of a virtual data center.
6. Manage virtual datacenter components using industry standard tools.

GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

Outcomes          ESO
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Use industry specific software and/or apply troubleshooting skills to solve problems
2. Create and defend solutions to real life business challenges
3. Demonstrate professional oral and written communication skills

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Examination/Quizzes (1-6)
2. Class Discussion/Participation (1-6)
3. Exercises/Projects (1-6)
4. Written/Oral Reports (1-6)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Cloud Concepts and Models
   A. Cloud delivery models and services
   B. Cloud computing terminology
   C. Benefits and challenges

II. Virtualization
   A. Hypervisors
   B. Virtual machines
   C. Benefits of virtualization
   D. Virtual components used to construct a cloud environment
   E. Resource management and best practices
   F. Tools for remote access

III. Infrastructure
   A. Modern datacenter infrastructure design and components
   B. Power
   C. Networks
   D. Air quality
   E. Physical security
   F. Redundancy and high availability
   G. Disaster Recovery

IV. Security
A. Cloud security concepts, tools, and best practices

V. Current topics in cloud computing*