CourseNumber	CS 425	Course Title	Principles of Virtualization and Cloud Computing
Semester Hours	3	Course Coordinator	Dunren Che

Catalog Description	Cloud Computing (CC) represents a recent major strategic shift in computing and Information Technology. This course explores fundamental principles, foundational technologies, architecture, design, and business values of CC. Understanding will be reinforced through multiple angles including: analysis of real world case studies, hands-on projects and in-depth study of research developments.

Textbooks

SP20

References

- Jamsa, K. (2013). *Cloud Computing.* Jones & Bartlett Learning. ISBN: 9781449647391.
- Buyya, R., Broberg, J. & Goscinski, A. (2011). *Cloud Computing: Principles and Paradigms.* John Wiley & Sons. ISBN: 9780470887998.

Course Learning Outcomes

- Understanding the principles of virtualization and Cloud Computing.
- To learn the architectures and models of Cloud Computing.
- To learn the Service Oriented Architecture (SOA).
- To learn and practice the Cloud programming models and frameworks.

Assessment of the Contribution to Student Outcomes

SP20

Outcome →	1	2	3	4	5	6	7
Assessed →	X	X	X		X		

Prerequisites by Topic

CS 330 with a grade of C or better or graduate standing.

Major Topics Covered in the Course

1. Introduction to the course {1 lecture}
2. Introduction to Distributed Computing {2 lectures}
3. Introduction to Cloud Computing {2 lectures}
4. Virtualization technology {5 lectures}
5. Architectures and models of Cloud Computing {8 lectures}
6. Service Oriented Architecture (SOA) {4 lectures}
7. Cloud operating systems {5 lectures}
8. Cloud programming models and frameworks {6 lectures}
9. Cloud data storage and management {3 lectures}
10. Cloud security {2 lectures}
11. Mobile Cloud Computing {2 lectures}

NOTE: When course is taken as 500-level credit (CS 591 "Special Topics"), there will be additional requirements such as a research project.