RUTGERS
NEWARK

Cloud Computing

21:198:342 (3 Credits)

COURSE DESCRIPTION:

The course explains how to create high-performance clusters, scalable networks, automated data centers, and high-throughput cloud/grid systems. The course covers programming, and the use of distributed or cloud systems in innovative Internet applications. Topics cover the transformation of traditional multiprocessors and multi-computer clusters into web-scale grids and clouds.

PREREQUISITE:

21:198:332 Operating Systems

TEXT BOOK:

Distributed and Cloud Computing: From Parallel Processing to Internet of things
Authors: Kwai Hwang, Geoffrey C. Fox, Jack J Dongarra
Publisher: Morgan Kaufmann
ISBN-13:978-0123858801
Digital version and the Hard copy of the text book is available at amazon

DEPARTMENT WEBSITE:

http://www.ncas.rutgers.edu/math

THIS COURSE COVERS THE FOLLOWING TOPICS:

Introduction:

- Introduction to Parallel, Distributed, Grid and Cloud Computing.

Cloud Enabling Technologies:

- Clustering for Massive Parallelism
- Design Principles of Computer Clusters
- Virtualization

Resource Management and Security in Cloud

- Inter-cloud Resource Management
- Virtual Machine Creation and Management
- Cloud Security and Challenges
- Security in Virtual Machines

Cloud Technologies and Advancements

- Features of Cloud and Grid Platforms
- Software and Middleware for Grid Computing
- Parallel and Distributed Programming
- Programming Support of Google App Engine
- Programming on Amazon AWS and Azure

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