



# MANIPAL UNIVERSITY JAIPUR

School of Computing and Information Technology

Department of Computer Science and Engineering  
Course Hand-out

Cloud Computing and Cloud Infrastructure Services | CS 1653 | 4 Credits  
Session: 2015-2016 | Faculty: Priyank Singh Hada

**Course Outcomes:** At the end of the course, students will be able to

- [1653.1]. Analyse the phases of transition from classic data center to virtual data center and then to the cloud.
- [1653.2]. Describe virtualization technology at compute, storage, network, desktop, and application layers of IT infrastructure.
- [1653.3]. Implement the key characteristics, services, and deployment models of cloud.
- [1653.4]. Elaborated the cloud infrastructure components and service management processes.
- [1653.5]. Illustrate the cloud security concerns and solutions.
- [1653.6]. Demonstrate the entrepreneurship skill by key considerations for migration to the cloud and Implement business continuity solutions in a VDC environment and hence improve employability skills.

## A. SYLLABUS

Clouds and Cloud Computing: Basic Concepts, Cloud Classifications, and Types of Services, deployment models; Classic Data Center (CDC): DBMS concepts, CDC drawbacks and need of Cloud Resources, CDC Management and case studies; Virtualized Data Center (VDC): Compute and Storage, Compute virtualization overview, Compute virtualization techniques, Virtual Machines, VM Resource management techniques, Physical to virtual conversion, Hypervisor Management Software, Virtual Infrastructure Requirements; Storage: Storage virtualization overview, Virtual Machine Storage, Block level and File level virtualization, Virtual provisioning and automated storage tiering; Networking: VDC networking overview, VDC networking components, VLAN and VSAN technologies, Network traffic management, Exercise – VDC networking; Desktop and Application: Desktop virtualization, Application virtualization, Business Continuity in VDC, Fault tolerance mechanism in VDC, Backup in VDC, Replication and migration in VDC, Cloud infrastructure and service creation, Cloud service management; Cloud Security: Security basics, Cloud security concerns and threats, Cloud security mechanisms, Access control and identity management in Cloud, Governance, risk, and compliance, Security best practices for Cloud, Cloud Migration; Issues in Cloud.

## B. TEXT BOOKS

- i. Course materials from EMC<sup>2</sup> Education Services
- ii. Miller M, "Cloud Computing", 8th Edition, Que Publishers 2008.
- iii. Buyya R K, "Cloud Computing: Principles and Paradigms", Wiley Press, 2011.

