Prasad V. Potluri Siddhartha Institute of Technology:: Vijayawada.
Department of Computer Science and Engineering

I/II M.Tech. (CSE) - (Second Semester)

17CSCS2T3 **CLOUD COOMPUTING** **Credits: 4**
Lecture: 4 Periods/week **Internal Assessment: 40 Marks**
Semester end examination: 60 Marks

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Course Description:

This course provides the concepts of Cloud Computing, Taxonomy of Virtualization Techniques. It also highlights on Cloud Computing Architecture, knowledge on Aneka Cloud Application Platform Industry Cloud Platforms.

Course Outcomes:

At the end of this course student will:

CO1: Understand the concept of virtualization and how this has enabled the development of Cloud Computing.

CO2: Know the fundamentals of cloud, cloud Architectures and types of services in Cloud.

CO3: Explore some important cloud computing driven commercial systems

CO4: Design different Applications in cloud

UNIT 1

Introduction to Cloud: Cloud Computing at a Glance, The Vision of Cloud Computing, Defining a Cloud, A Closer Look, Cloud Computing Reference Model. Characteristics and Benefits, Challenges Ahead, Historical Developments.

Virtualization: Introduction, Characteristics of Virtualized Environment, Taxonomy of Virtualization Techniques, Virtualization and Cloud computing, Pros and Cons of Virtualization, Technology Examples- VMware and Microsoft Hyper-V.

UNIT 2

Cloud Computing Architecture : Introduction, Cloud Reference Model, Architecture, Infrastructure / Hardware as a Service, Platform as a Service, Software as a Service, Types of Clouds, Public Clouds, Private Clouds, Hybrid Clouds, Community Clouds, Economics of the Cloud, Open Challenges, Cloud Interoperability and Standards, Scalability and Fault Tolerance.

UNIT 3

Aneka: Cloud Application Platform Framework Overview, Anatomy of the Aneka Container, From the Ground Up: Platform Abstraction Layer, Fabric Services, Foundation Services, Application Services, Building Aneka Clouds, Infrastructure Organization, Logical Organization, Private Cloud Deployment Mode, Public Cloud Deployment Mode, Hybrid Cloud Deployment Mode, Cloud Programming and Management, Aneka SDK, Management Tools.

UNIT 4

Cloud Applications: Scientific Applications – Health care, Geoscience and Biology. Business and Consumer Applications- CRM and ERP, Social Networking, Media Applications and Multiplayer Online Gaming. **Cloud Platforms in Industry:** Amazon Web Services**-** Compute Services, Storage Services, Communication Services and Additional Services. Google AppEngine-Architecture and Core Concepts, Application Life-Cycle, cost model. Microsoft Azure- Azure Core Concepts, SQL Azure.

Text Book:
1. Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, "Mastering Cloud Computing", TMH 2013.

References:
1. George Reese, "Cloud Application Architectures", First Edition, O"Reilly, Media 2009.
2. David S. Linthicum, "Cloud Computing and SOA Convergence in Your Enterprise A Step-by-Step Guide", Pearson 2010.
3. Dr. Kumar Saurabh, "Cloud Computing" 2nd Edition by from Wiley India 2012.
4. Micheal Miller, "Cloud Computing – web based Applications that change the way you work and collaborate Online", .Pearson Education.