PVP20

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)
Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI&ML)

III B. Tech – I Semester CSE (AI&ML)

Cloud Computing

Course Code	20AM3502	**Year**	III	**Semester**	I
Course Category	PCC	**Branch**	CSE(AI&ML)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	OperatingSystems
Continuous Internal Evaluation	30	**Semester End Examination**	70	**Total Marks**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Describe the fundamental concepts, characteristics, benefits, services and architectures of Cloud Computing.	**L2**
CO2	Apply Cloud Computing architectures and platforms to design and deploy cloud-based applications and services.	**L3**
CO3	Utilize the features of cloud storage systems and enhance data security and integrity in Cloud Computing	**L3**
CO4	Analyze cloud resource management, scheduling policies and mechanisms to optimize performance and stability in cloud computing environments.	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of Correlations (3:High, 2: Moderate, 1:Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2													
CO2	3											2		
CO3	3											2		
CO4		3										2		

Syllabus		
Unit No.	**Contents**	**Mapped CO**
I	**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. **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.	CO1
II	**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.	CO1, CO2
III	**Cloud Resource Management and Scheduling:** Policies and Mechanisms for Resource Management, Applications of Control Theory to Task Scheduling on a Cloud, Stability of a Two-Level Resource Allocation Architecture, Feedback Control Based on Dynamic Thresholds, Coordination of Specialized Autonomic Performance Managers, Resource Bundling, Scheduling Algorithms for Computing Clouds-Fair Queuing, Start Time Fair Queuing.	CO1, CO2, CO4
IV	**Storage Systems**: The Evolution of Storage Technology, Storage Models, File Systems and Databases, Distributed File Systems, General Parallel File Systems, Google File System. **Cloud Security**: Cloud Security Risks, Security – The Top Concern for Cloud Users, Privacy and Privacy Impact Assessment, Trust, Operating System Security, Virtual Machine Security, Security Risks.	CO1, CO2, CO3
V	**Cloud Platforms in Industry:** Amazon Web Services- Compute Services, Storage Services, Communication Services and Additional Services. **Google App Engine**: Architecture and Core Concepts, Application Life-Cycle, Cost Model. **Microsoft Azure**: Azure Core Concepts, SQL Azure.	CO1, CO2, CO4

Learning Resources
Text Books
1. Mastering Cloud Computing**:** Foundations and Applications Programming, Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, 2013, MK Elsevier. 2. Cloud Computing Theory and Practice, Dan C Marinescu, Second Edition,2017, MK Elsevier
Reference Books
1. Cloud Computing Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzej Goscinski, Wiley Publishing. 2. Cloud Application Architectures, George Reese, First Edition, 2009,O‟Reilly. 3. Cloud Computing – Web based Applications that change the way you work and collaborateOnline, Micheal Miller, Pearson Education.

e- Resources & other digital material

1. https://nptel.ac.in/courses/106105167
2. https://onlinecourses.nptel.ac.in/noc21_cs14/preview
3. https://www.youtube.com/watch?v=Jph3H1wZTKM&list=PLDW872573QAbcpQ7VSUdcm4o3tgnQYBE8