PVP 23

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (Data Science)

III B Tech – I Semester

Cloud Computing

Course Code	**23DS4501B**	**Year**	III	**Semester**	I
Course Category	PEC	**Branch**	CSE (Data Science)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Computer Fundamentals
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes		
Upon Successful completion of course, the student will be able to		
CO1	Describe the key concepts and components of cloud computing to illustrate its significance in cloud-enabled computing environments.	**L2**
CO2	Apply cloud architecture and distributed computing principles to implement service models, deployment types, and communication mechanisms in cloud environments.	**L3**
CO3	Apply advanced cloud infrastructure and security concepts to deploy secure and efficient cloud solutions using federated models and industry platforms.	**L3**
CO4	Analyze distributed computing principles, cloud security architectures, and industrial platforms to assess the effectiveness of secure and efficient cloud-based solutions.	**L4**

Contribution of course outcomes towards achievement of program outcomes & Strength of correlations (3: Substantial,2: Moderate,1: Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**P010**	**PO11**	**PSO1**	**PSO2**
CO1	**2**												
CO2	**3**												
CO3	**3**												
CO4		**3**									**2**		

Syllabus		
Unit		**Map**

PVP 23

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)
Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (Data Science)

III B Tech – I Semester

No	Contents	ped 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	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. Economics of the cloud, cloud interoperability and standards, scalability and fault tolerance.	CO1, CO2
III	**Principles of Parallel and Distributed Computing:** parallel and distributed computing, elements of parallel computing, hardware architectures for parallel computing (SISD, SIMD, MISD, MIMD), elements of distributed computing, Models for Inter-process communication, technologies for distributed computing, remote procedure calls (RPC), service-oriented architecture (SOA), Web services.	CO1, CO2, CO4
IV	**Advanced Topics in Cloud Computing:** Energy efficiency in clouds, federated clouds. **Cloud Security:** cloud computing security, fundamentals of computer security, cloud security architecture, cloud shared responsibility model, security in cloud deployment models	CO1, CO3, CO4
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, CO3, CO4

Learning Resources
Text Books
1. Mastering Cloud Computing, Rajkumar Buyya, Christian Vecchiola, Thamarai Selvi, Shivananda Poojara, and Satish N. Srirama, 2nd Edition, 2024, McGraw-Hill Education. 2. Distributed and Cloud Computing, Kai Hwang, Geoffrey C. Fox, and Jack J. Dongarra, 1st Edition, 2012, Elsevier
References
1. Cloud Computing: Theory and Practice, Dan C. Marinescu, 2nd Edition, 2018, Morgan Kaufmann (Elsevier). 2. Essentials of Cloud Computing, K. Chandrasekaran, 1st Edition, 2014, CRC Press. **3.** Online Documentation and Tutorials, Cloud Service Providers (e.g., AWS, Azure, GCP), Latest Edition, Official Websites
E-Recourses and other Digital Material
1. https://onlinecourses.nptel.ac.in/noc21_cs14/preview 2. https://onlinecourses.nptel.ac.in/noc22_cs18/preview