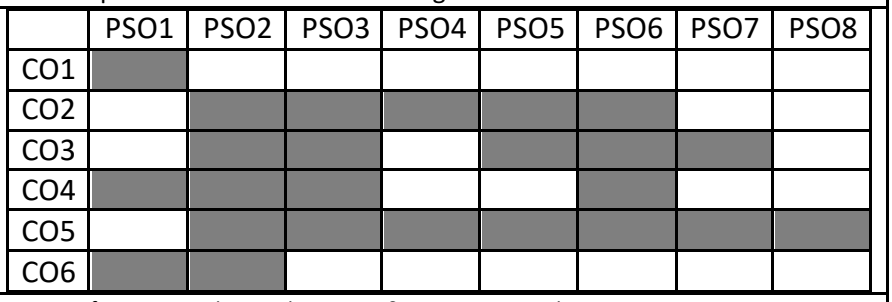
Course: 103: Cloud Computing

Course Code	**103**
Course Title	**Cloud Computing**
Credit	4
Teaching per Week	4 Hrs.
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Review / Revision	June 2020
Purpose of Course	The purpose of the course is to make student capable of implementing the concepts, methods and tools of Cloud Computing
Course Objective	The objective of the course is to provide comprehensive and in-depth knowledge of Cloud Computing Concepts, technologies, architecture, applications and implementation.
Course Outcome	CO1 : Explain students about the cloud and cloud computing, History & Evolution ,Properties & Characteristics, Advantages & Disadvantages of cloud computing. CO2: Explain students about various service models and deployment models CO3: To provide students a foundation of different cloud service models IAAS,PAAS and SAAS so that they are able to use Cloud Computing Services in real world problem CO4:Understanding the concepts of cloud infrastructure security, data security and storage, Access control and authentication in cloud. CO5: Train students to use AWS and Microsoft Azure CO6: Explain students in brief about BigTable and Firebase
Mapping between COs with PSOs	
Pre-requisite	Basics of DBMS, Web Development & HTML, Networking
Course Out come	To give basic knowledge of cloud computing, its architecture and its benefits and how to deploy applications on well-known cloud platforms
Course Content	**Unit 1: Introduction to Cloud & its architecture** 1.1 Introduction & Definitions 1.2 Cloud Computing (NIST) 1.2.1 History & Evolution 1.2.2 Properties & Characteristics 1.2.3 Advantages & Disadvantages 1.3 Cloud Architecture overview **Unit 2: Cloud Computing Models** 2.1 Cloud computing Stack 2.1.1 Comparison with traditional architecture 2.2 Service Models 2.2.1 Infrastructure as a Service (IaaS) 2.2.2 Platform as a Service (PaaS) 2.2.3 Software as a Service (SaaS) 2.3 Deployment Models 2.3.1 Public Cloud

	2.3.2 Private Cloud 2.3.3 Hybrid Cloud 2.3.4 Community Cloud **Unit 3: Cloud Service Models** 3.1 Infrastructure as a Service (IAAS) 3.1.1 Introduction to Virtualization 3.1.1.1 Hypervisors, Virtual Machine, Machine Image 3.1.2 Resource Virtualization 3.1.2.1 Server, Storage, Network 3.1.3 Amazon EC2, Eucalyptus 3.2 Platform as a Service (PAAS) 3.2.1 Introduction to SOA 3.2.2 Cloud Platform 3.2.2.1 Computing 3.2.2.2 Storage 3.2.3 Introduction to Microsoft Azure 3.2.4 Introduction to Salesforce's Force.com 3.3 Software as a Service (SAAS) 3.3.1 Introduction 3.3.2 Web Service & Web OS **Unit 4: Cloud Security** 4.1 Infrastructure Security 4.2 Data Security and Storage 4.3 Identity and Access Management (IAM) 4.4 Access Control 4.5 Authentication in Cloud **Unit 5: Cloud Databases (DBaaS)** 5.1 AWS SimpleDB & RDS 5.2 Azure Table Service & SQL Azure 5.3 Introduction to BigTable 5.4 Introduction to Firebase
Reference Books	1. Cloud Computing Principles and Paradigms (Wiley) Rajkumar Buyya, James Broberg, Andrzej M. Goscinski 2. Cloud Computing: Principles, Systems and Applications Nikos Antonopoulos, Lee Gillam (Springer) 3. Enterprise Cloud Computing: Technology, Architecture, Applications Gautam Shroff - Cambridge University Press 4. Cloud and Virtual Data Storage Networking Greg Schulz - Auerbach 5. Cloud Security: A Comprehensive Guide to Secure Cloud Computing Ronald L Krutz, Russel Dean Vines (John Wiley & Sons) 6. Cloud Computing (David Crookes - TMH Education) 7. Cloud Computing Bible Barrie Sosinsky (Wiley India) 8. Cloud Computing: Implementation, Management and Security (James F Ransome, John W Rittinghouse - CRC Press)

	9. Amazon Cloud Computing with Java (Aditya Yadav - Lulu.com) 10. Grid and Cloud Database Management Fiore, Sandro, Aloisio, Giovanni - Springer 11. Building a Database Cloud for Dummies Michael Wessler John Wiley & Sons
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30 % internal assessment and 70% external assessment