GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications	**Branch/Spec.**	Computer Application
Semester	II	**Version**	1.0.0.0
Effective from Academic Year	2024-25	**Effective for the batch Admitted in**	June 2024
Subject Code	P12A4CC1	**Subject Name**	Cloud Computing-I

Teaching scheme						**Examination scheme (Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	2	0	2	0	4	Theory	40	60	100
Hours	2	0	4	0	6	Practical	20	30	50

Objective:

- Students can understand and learn fundamental concepts of cloud computing such as architecture of cloud computing, cloud deployment models, cloud service models with case study.

Pre-requisites:

- Operating System Concepts, Computer Network Concepts, Basic Programming concepts

Course Outcomes :

- **1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High); "-" = No Correlation**

Name of CO	**Description**
CO1	Explain the fundamental concepts and characteristics of various computing paradigms (distributed, grid, utility, peer-to-peer) and basic cloud computing architecture.
CO2	Implement and configure basic cloud services using OpenStack in a case-study scenario.
CO3	Analyze and compare different cloud deployment models (public, private, hybrid) and their suitability for specific use cases.
CO4	Evaluate and select appropriate cloud service models (IaaS, PaaS, SaaS) for given application requirements.

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	2
CO2	-	-	2	3	-	-	-	-
CO3	1	3	2	-	-	-	-	1
CO4	1	2	3	-	-	-	-	-

Content:

Unit	**Section - I**	**Hrs**

1	**Computing Paradigms** Distributed Computing, Peer-to-Peer Computing, Cluster Computing, Utility Computing, Grid Computing, Cloud Computing **Cloud Computing Basics** Cloud Computing – Introduction: Features and Applications, Challenges and Issues, Characteristics of Cloud Computing Cloud Computing – Planning: Strategy Phase, Planning Phase, Deployment Phase.	10
2	**Cloud Deployment Models** Public Cloud Model, Private Cloud Model, Hybrid Cloud Model, Community Cloud Model	5
	Section-II	
3	**Cloud Service Models: IaaS, PaaS, SaaS** **Infrastructure as a Service (IaaS):** Introduction to Infrastructure, Virtual machines, Virtualization, Hypervisors, Server virtualization, Resource provisioning, Scaling, Implementation of IAAS, Applications, Issues and Challenges, Dockers and containers **Platform as a Service (PaaS):** Introduction to various platforms, Characteristics, PaaS architecture, Containers, Application staging, Implementation of PaaS, Issues, Application Development and Deployment using PaaS. **Software as a Service (SaaS):** Introduction to services, web services, APIs, Service management	10
4	**Case study** Cloud Implementation using Open Stack.	5

Practical Content:	
List of programs specified by the subject teacher based on above mentioned topics.	
Text Books:	
1	Barrie Sosinsky: "Cloud Computing Bible", Wiley-India, 1st Edition 2011
2	Judith Hurwitz : “Cloud Computing For Dummies” 2nd Edition, Wiley Publishing 2020.
Reference Books:	
1	RajkumarBuyya, James Broberg, Andrzej M. Goscinski: "Cloud Computing: Principles and Paradigms", Wiley, 1st Edition 2013
2	Nikos Antonopoulos, Lee Gillam: "Cloud Computing: Principles, Systems and Applications", Springer, 2012
MOOC/Certification Courses:	
1	https://nptel.ac.in/courses/106105167
2	https://nptel.ac.in/courses/106104182
3	https://www.edx.org/course/introduction-to-openstack
Question Paper Scheme:	
University Examination Duration: 3 Hours Note for Examiner: -	

(I) Questions 1 and 4 are compulsory with no options.
(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION – I

Q.1 –8 Marks
Q.2 –11 Marks
Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks
Q.5 –11 Marks
Q.6 –11 Marks