



ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+' Grade by NAAC(CGPA:3.68/4.00)

College with Potential for Excellence by UGC

DST-FIST Supported & STAR College Scheme by DBT

Faculty of Science

Bachelor of Science

B.Sc. VI Semester

Paper II- Discipline Specific Elective (DSE-I)

Subject : Cloud Computing

Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO 1	Analyze the trade-offs between deploying applications in the cloud and over the local infrastructure.	Analyze
CO 2	Compare the advantages and disadvantages of various cloud computing platforms.	U
CO 3	Deploy applications over commercial cloud computing infrastructures such as Amazon Web Services, Windows Azure, and Google App Engine	Apply
CO 4	Analyze the performance, scalability, and availability of the underlying cloud technologies and software.	Analyze
CO 5	Solve a real-world problem using cloud computing through group collaboration	Apply
CO 6	Identify security and privacy issues in cloud computing.	Apply

Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	4	40	60	100
Practical	2	40	60	100
Total	6	200		

Evaluation Scheme

	Marks	
	Internal	External
Theory	3 Internal Exams of 20 Marks (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)
Practical	3 Internal Exams (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)





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BSc VI Semester

Paper-DSE-I

Cloud Computing **Content of the Course** **Theory**

Total No. of Lectures: 60 Hrs.

Maximum Marks: 60

Units	Topics	No. of Lecture
I	Introduction to Cloud Computing: Overview, NIST Definition of Cloud Computing, NIST features, Historical Development, Need for Cloud Computing, Principles of Cloud Computing, Challenges and Risk of Cloud Computing, Advantages and Drawbacks. Cloud applications: Scientific Applications, Business and Consumer Applications, Productivity Applications, Online Social Networking Applications, Media Applications.	10
II	Cloud Architecture and Model: Cloud Computing Architecture, Cloud Reference Model, NIST Cloud Computing Reference Architecture, IBM Cloud Computing Reference Architecture, Cloud Security Alliance (CSA) Reference Model. Service and Deployment Models: Infrastructure As A Service (IaaS), Platform As A Service (PaaS), Software As A Service (SaaS), Other Cloud Service Models, Public, Private, community and Hybrid Deployment Models.	10
III	Virtualization Technology: Meaning and Level of Virtualization, Hypervisor, Type 1 Hypervisor, Type 2 Hypervisors. Full virtualization, Para-virtualization, Hardware Assisted Virtualization. Types of Virtualization: Server Virtualization, Storage Virtualization, Network Virtualization, Operating System Virtualization, Application Server Virtualization, Creating A Virtual Machine.	10
IV	Cloud security - Cloud security fundamentals, a Vulnerability assessment tool for cloud, Privacy and Security in the cloud. Cloud computing security architecture - General Issues, Trusted Cloud computing, Micro - architectures; Identity Management and Access control, Autonomic security, Security challenges.	15
V	Issues in cloud computing - Implementing real-time application over cloud platform, Issues in Inter -cloud environments, QoS Issues in Cloud, Dependability, data migration, streaming in Cloud. Quality of Service (QoS), monitoring in a Cloud computing environment, Mobile Cloud Computing, A grid of clouds, Sky computing.	15



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References

Text Books:

- Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
- Ronald Krutz and Russell Dean Vines, Cloud Security, Wiley-India
- Dr. Kumar Saurabh, "Cloud Computing", Wiley Publication

Reference Books:

- Bloor R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for Dummies", Wiley India Edition.
- John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and Strategy", CRC Press.
- Anthony T Velte, "Cloud Computing: A Practical Approach", McGraw Hill
- Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".
- James E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publishers

List of Practical

1. Download and Install Virtual Machine (Virtual Box, VMware, and KVM)
2. Installing Virtual Machine
3. Controlling Virtual Machine (Start, restart, power off)
4. Editing Virtual Machine Hardware
5. Creating and Using Image Snapshots
6. Importing and Exporting Virtual Machine Images
7. Accessing Linux Command Line
8. Managing Files from the Command Line
9. Creating, Viewing, and Editing Text Files
10. Installing and Updating Software Packages

