PR GOVT COLLEGE (A) :: KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
III BSC (CS) -SEMESTER –VI
(Cluster 2) Paper-VIII : Elective II(Cluster –B2)

Cloud Computing

Course Objectives:

The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas, Paas, Saas, and developing cloud based software applications on top of cloud platforms.

Course Outcomes

1. Compare the strengths and limitations of cloud computing
2. Identify the architecture, infrastructure and delivery models of cloud computing
3. Apply suitable virtualization concept.
4. Choose the appropriate cloud player , Programming Models and approach.
5. Address the core issues of cloud computing such as security, privacy and interoperability
6. Design Cloud Services and Set a private cloud

Unit 1

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , Measured service

Unit II

Cloud scenarios – Benefits: scalability , simplicity , vendors ,security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution
Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platfrom – Benefits – Operational benefits - Economic benefits
– Evaluating SaaS **Platform as a Service** (PaaS): PaaS service providers –Salesforce.com – Services and Benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid — – Benefits

Cloud deployment model : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations

Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization

Desktop virtualization: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization **Microsoft Implementation**: Microsoft Hyper V – Vmware features and infrastructure – Virtual Box - Thin client

Reference Books

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill , New Delhi - 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.
4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press
5. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christenvecctiola, S Tammarai selvi, TMH

Student Activity:

1. Prepare the list of companies providing cloud services category wise.
2. Create a private cloud using local server

Cloud Computing Lab

Outcomes: Learner will be able to…

1. Appreciate cloud architecture
2. Create and run virtual machines on open source OS
3. implement Infrastructure , storage as a Service.

Use Eucalyptus or Open Nebula or equivalent to set up the cloud and demonstrate.

1. Find procedure to run the virtual machine of different configuration. Check how many virtual machines can be utilized at particular time.
2. Find procedure to attach virtual block to the virtual machine and check whether it holds the data even after the release of the virtual machine.
3. Install a C compiler in the virtual machine and execute a sample program.

4. Show the virtual machine migration based on the certain condition from one node to the other.
5. Find procedure to install storage controller and interact with it.

1. Introduction to cloud computing.
2. Creating a Warehouse Application in Sales Force.com.
3. Creating an Application in Sales Force.com using Apex programming Language.
4. Implementation of SOAP web services in C#/ JAVA Applications.
5. Implementation of Para- Virtualization using VM ware's workstation/ Oracle's Virtual Box and Guest O.S.

PR GOVT COLLEGE (A):: KAKINADA

DEPT OF COMPUTER SCIENCE

B.Sc (Computer Science)

III B.Sc Computer Science VI-Semester

MODEL QUESTION PAPER

Paper - VIII : Elective – II : (Cluster - B1) CLOUD COMPUTING

Time : 2 ½ Hours Max.Marks:60

SECTION-A

Answer the following questions: **5x 1=5M**

1. What is cloud computing?
2. Define scalability.
3. Define SPI evolution.
4. What is rapid elasticity**?**
5. What is data virtualization**?**

SECTION – B

Answer any **THREE** of the following questions **3x5=15M**

6. Explain the design of cloud computing?
7. What are the regularity issues?
8. Explain security concerns in cloud
9. Write about various PaaS providers
10. What is IaaS? List various IaaS providers
11. What is virtualization? What is the need for virtualization?

SECTION - C

Answer **ALL** the following questions. **4 x 10 = 40 M**

12. a) What is Cloud Computing? Explain the components of Cloud Computing. (or)

    b) Explain various characteristics of Cloud Computing.

13. a) Explain various Cloud scenarios.

    (or)

    b) What are the benefits and limitations of Cloud scenerios?

14. a) Explain about SPI frames work.

    (or)

    b) Write a note on about the following SaaS providers

    i) Google App Engine ii) Salesforce.com

15. a) Explain various Cloud deployment models

    (or)

    b) What are the advantages and disadvantages of Cloud Computing?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.Sc Semester- VI

SUBJECT: CLOUD COMPUTING (Elective-B) **Time:2 ½ Hrs**
PAPER- VIII **Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	2	1	1	26
Module-3	1	1	1	16
Module-4	1	1	1	16
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

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DEPARTMENT OF COMPUTER SCIENCE
III B.Sc (CS)-SEMESTER-VI
Paper-VIII: CLOUD COMPUTING (Elective-B)

Time: 2 ½ Hrs
Marks:60

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$