CLOUD APPLICATION DEVELOPMENT LABORATORY

VII Semester: CSE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACSB19	Core	-	-	3	1.5	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 45				Total Classes: 45		

I. COURSE OVERVIEW:

This Laboratory course provides a foundation for which we can access the applications as utilities over the internet. It allows us to create, configure, and customize the business applications online. a cloud application, or cloud app, is a software program where cloud-based and local components work together. This model relies on remote servers for processing logic that is accessed through aweb browser with a continual internet connection. Hadoop is an open-source framework that allows to store and process big data in a distributed environment across clusters of computers using simple programming models. It is designed to scale up from single servers to thousands of machines, each offering local computation and storage.

II. COURSE OBJECTIVES:

The course should enable the students to:

I. To run virtual machines of different configuration.
II. Big data application using Hadoop under cloud environment..
III. The developing web applications in cloud framework.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Make use of** Virtualization and parallel processing on guest and host OS for performing different tasks by installing virtual machines.	Apply
CO 2	**Develop** Mapper and Reducer on simple applications by using Apache Hadoop on single node setup installation.	Apply
CO 3	**Construct** simple applications on services rendered by Amazon WebService Cloud Service Provider.	Apply
CO 4	**Build** simple applications on services rendered by Google ServiceProvider.	Apply
CO 5	**Utilize** simple applications on services rendered by Microsoft Azure cloud Service Provider.	Apply
CO 6	**Develop** web based App by using Yahoo! pipes.	Apply

Week-1	**VIRTUALIZATION**
Install Oracle Virtual box and create two VMs on your laptop	
Week-2	**VIRTUALIZATION**
Install Turbo C in guest OS and execute C program.	
Week-3	**VIRTUALIZATION**
Test ping command to test the communication between the guest OS and Host OS.	
Week-4	**HADOOP**

Install Hadoop single node setup.	
Week-5	**HADOOP**
Develop a simple hadoop application called Word Count. It counts the number of occurrences of each word in a given input set.	
Week-6	**HADOOP**
Develop hadoop application to count no of characters, no of words and each character frequency.	
Week-7	**HADOOP**
Develop hadoop application to process given data and produce results such as finding the year of maximum usage, year of minimum usage.	
Week-8	**HADOOP**
Develop hadoop application to process given data and produce results such as how many female and male students in both schools the results should be in following format. GP-F #number GP-M #numbers MS-F #number MS-M #number	
Week-9	**CLOUD PROGRAMMING**
Establish an AWS account. Use the AWS Management Console to launch an EC2 instance and connect to it.	
Week-10	**CLOUD PROGRAMMING**
Design a protocol and use Simple Queue Service(SQS)to implement the barrier synchronization after the first phase.	
Week-11	**CLOUD PROGRAMMING**
Use the Zookeeper to implement the coordination model in Problem 10.	
Week-12	**CLOUD PROGRAMMING**
Develop a Hello World application using Google App Engine	
Week-13	**CLOUD PROGRAMMING**
Develop a Guestbook Application using Google App Engine.	
Week-14	**WINDOWS AZURE**
Develop a Windows Azure Hello World application using.	
Week-15	**PIPES**
Create a Mashup using Yahoo! Pipes.	
Reference Books:	
1. Dan Marinescu, “Cloud Computing: Theory and Practice”, M K Publishers, 1st Edition, 2013. 2. Kai Hwang, Jack Dongarra, Geoffrey Fox, “Distributed and Cloud Computing, From Parallel Processing to the Internet of Things”, M K Publishers, 1st Edition, 2013. 3. Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, “Cloud Computing: A Practical Approach”,	

McGraw Hill, 1st Edition, 2009.
4. Arshdeep Bahga, Vijay Madisetti, “Cloud computing A Hands on Approach”, Universities Publications, 1st Edition, 2013.

Web References:

1. http://www.howtogeek.com/196060/beginner-geek-how-to-create-and-use-virtual-machines/
2. http://www.tutorialspoint.com/hadoop/
3. https://aws.amazon.com/
4. http://www.tutorialspoint.com/zookeeper/
5. https://cloud.google.com/appengine/docs/java/gettingstarted/creating-guestbook .
6. https://www.google.co.in/?gfe_rd=cr&ei=SZIJWOnpIanqugTDyrewCw&gws_rd=ssl#q=yaho o+pipes+ mashup+tutorial.

Course Home Page:

SOFTWARE AND HARDWARE REQUIREMENTS FOR 36 STUDENTS:

HARDWARE: Desktop systems: 36 nos.

SOFTWARE: Globus Toolkit or equivalent Eucalyptus or Open Nebula.