CLOUD APPLICATION DEVELOPMENT LABORATORY

VII Semester: CSE / IT								

Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
ACS110	**Core**	-	-	3	2	30	70	100

Contact Classes: Nil	**Tutorial Classes: Nil**	**Practical Classes: 45**	**Total Classes: 45**

COURSE OBJECTIVES:

The course should enable the students to:

I.   Learn to run virtual machines of different configuration .
II.   Develop Big data application using Hadoop.
III. Exposed to tool kits for cloud environment.
IV. Developing web services/Applications in cloud framework

COURSE LEARNING OUTCOMES (CLOs):

1.   Understand the installation of Virtual box and VMware.
2.   Understand and the install Turbo C in guest OS and execute C program..
3.   Understand the ping command to test the communication between the guest OS and Host OS.
4.   Understand and install Hadoop single node setup..
5.   Understand and develop a simple hadoop application called Word Count. It counts the number of occurrences of each word in a given input set.
6.   Understand and develop hadoop application to count no of characters, no of words and each character frequency.
7.   Understand and develop hadoop application to process given data and produce results such as finding the year of maximum usage, year of minimum usage.
8.   Understand and develop hadoop application to process given data and produce results such as how many female and male students in both schools.
9.   Understand and establish an AWS account. Use the AWS Management Console to launch an EC2 instance and connect to it.
10. Understand and design a protocol and use Simple Queue Service(SQS)to implement the barrier synchronization after the first phase.
11. Understand and use the Zookeeper to implement the coordination model in Problem 10.
12. Understand and develop a Hello World application using Google App Engine.

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, 1 st 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, 1 st Edition, 2009.
4. Arshdeep Bahga, Vijay Madisetti, ―Cloud computing A Hands on Approach‖, Universities Publications, 1 st 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=yahoo+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.