



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

CLOUD APPLICATION DEVELOPMENT LABORATORY

| VII Semester: CSE | | | | | | | | |
|--|-------------------------------|------------------------------|---|---|--------------------------|---------------|-----|-------|
| Course Code | Category | Hours / Week | | | Credits | Maximum Marks | | |
| | | L | T | P | | CIA | SEE | Total |
| ACSC33 | Core | 0 | 0 | 3 | 1.5 | 30 | 70 | 100 |
| Contact Classes: Nil | Tutorials Classes: Nil | Practical Classes: 36 | | | Total Classes: 36 | | | |
| Prerequisite: There are no prerequisites to take this course | | | | | | | | |
| I. COURSE OVERVIEW: | | | | | | | | |
| <p>Cloud Computing provides us means by 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 a web 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.</p> | | | | | | | | |
| II. COURSE OBJECTIVES: | | | | | | | | |
| The students will try to learn: | | | | | | | | |
| <ul style="list-style-type: none"> I. How to run virtual machines of different configuration. II. The application of Big data using Hadoop under cloud environment. III. Exposed to tool kits for cloud environment. IV. How to develop web services / Applications in cloud framework. | | | | | | | | |
| III. SYLLABUS: | | | | | | | | |
| WEEK-1: VIRTUALIZATION | | | | | | | | |
| Install Oracle Virtual box and create two VMs on your laptop. | | | | | | | | |
| WEEK-2: PROGRAMMING IN VM | | | | | | | | |
| Install Turbo C in guest OS and execute C program | | | | | | | | |
| WEEK-3: COMMUNICATION AMONG VMs | | | | | | | | |
| Test ping command to test the communication between the guest OS and Host OS. Find a procedure to transfer the files from one virtual machine to another virtual machine. | | | | | | | | |
| WEEK-4: GOOGLE APP ENGINE | | | | | | | | |
| Install Google App Engine. Create hello world app and other simple web applications using python / java. | | | | | | | | |
| WEEK-5: GOOGLE APP ENGINE LAUNCHER | | | | | | | | |
| Use Google App Engine (GAE) launcher to launch the web applications | | | | | | | | |
| WEEK-6: CLOUDSIM | | | | | | | | |
| Simulate a cloud scenario using Cloud Sim and run a scheduling algorithm that is not present in Cloud Sim. | | | | | | | | |
| WEEK-7: TRYSTACK | | | | | | | | |
| Demonstrate a procedure to launch virtual machine using try stack (Online Open stack Demo Version). | | | | | | | | |
| WEEK-8: DATA INTENSIVE PROGRAMMING | | | | | | | | |
| Install Hadoop single node cluster and run simple applications like word count | | | | | | | | |
| WEEK-9: AWS – EC2 | | | | | | | | |
| Establish an AWS account. Use the AWS Management Console to launch an EC2 instance and connect to it. | | | | | | | | |

WEEK-10: AWS, SIMPLE QUEUE SERVICE(SQS)

Design a protocol and use Simple Queue Service (SQS) to implement the barrier synchronization after the first phase.

WEEK-11: CSP MONITOR

Use the Zoo keeper to implement the coordination model in Problem 10.

WEEK-12: CLOUD DEPLOYMENT

Demonstrate authentication and JWT Cloud Deployment Using Docker.

WEEK-13: CLOUD PROGRAMMING

Develop a Guest book Application using Google App Engine.

WEEK-14: WINDOWS AZURE

Develop a Windows Azure HelloWorld application

IV. TEXT BOOKS:

1. Dan Marinescu, "Cloud Computing: Theory and Practice", MK Publishers, 1st Edition, 2013.
2. Kai Hwang, Jack Dongarra, Geoffrey Fox, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", MK Publishers, 1st Edition, 2013.

V. REFERENCE BOOKS:

1. Anthony T. Velte, Toby J. Velte, Robert Else Peter, "Cloud Computing: A Practical Approach", McGraw-Hill, 1st Edition, 2009.
2. Arshdeep Bahga, Vijay Madisetti, "Cloud Computing A Hands-on Approach", Universities Publications, 1st Edition, 2013.

VI. WEB REFERENCES:

1. <http://www.howtogeek.com/196060/beginner-geek-how-to-create-and-use-virtual-machines/>
2. <http://www.tutorialspoint.com/hadoop/>
3. <http://www.tutorialspoint.com/zookeeper/>
4. <https://cloud.google.com/appengine/docs/java/gettingstarted/creating-guestbook>