

**IV Year I Semester**

**L T P C**

**Code: 17CS751**

**0 0 3 2**

**CLOUD COMPUTING LAB  
(Skill Course lab-II)**

**OBJECTIVES:**

1. To provide an overview of concepts of Cloud Computing.
2. To make the students understand concepts of virtualization and to use cloud as Infrastructure, Platform, Software services.
3. To understand the security features, user management of Cloud.

**Experiment1:**To study cloud architecture and cloud computing model

**Experiment2:**Installation and Configuration of virtualization using KVM

**Experiment3:**To study and implementation of Infrastructure as a Service

**Experiment4:**To study and implementation of identity management

**Experiment5:**To study and implementation of Storage as a Service

**Experiment6:**To Study Cloud security management

**Experiment7:**Mini Project

**OUTCOMES:**

1. Student should understand and appreciate cloud architecture.
2. Student can create and run virtual machines on open source OS
3. Student can implement Infrastructure, storage as a Service.
4. Students can install and appreciate security features and user management for cloud using web application.

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**MACHINE LEARNING USING PYTHON  
(Skill course lab-II)**

**OBJECTIVES:**

1. Construct machine learning basic algorithms Find-S etc.,
2. Read and analyze contents of csv files
3. Applying K-Means and Back propagation algorithms

**Experiment1:**

Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file.

**Experiment2:**

For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples.

**Experiment3:**

Write a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.

**Experiment4:**

Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.

**Experiment5:**

Write a program to implement the naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.

**Experiment6:**

Assuming a set of documents that need to be classified, use the naïve Bayesian Classifier model to perform this task. Built-in Java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.

**Experiment7:** Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data Set. You can use Java/Python ML library classes/API.

**Experiment8:** Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.

**Experiment9:** Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set. Print both correct and wrong predictions. Java/Python ML library classes can be used for this problem.

**Experiment10:** Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs.

**OUTCOMES:**

- Understand the practical implementation of Machine Learning algorithms

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**MEAN STACK-II  
(Skill course lab-II)**

**OBJECTIVES:**

1. Construct dynamic web pages using CSS and JS
2. Generate CRUD applications
3. Creating and Storing data with MongoDB

**Experiment 1:**

Write an Angular JS code which can build animated transition with the help of CSS

**Experiment 2:**

Write an Angular JS code which describes filters in Angular JS

**Experiment 3:**

Write an Angular JS code to display tables in different formats.

**Experiment 4:**

Write an Angular JS code to display Angular JS form and submit the data.

**Experiment 5:**

- a. Write a Java Script program in Node JS to read the data from the file?
- b. Write a Java Script program in Node JS to write the data to the file?

**Experiment 6: (CRUD operations)**

- a. Write a program in Node JS to check whether the database has been created successfully or not in MongoDB? (first install mongodb driver using npm install mongodb)
- b. Write a program in Node JS to insert single document in Mongo DB?
- c. Write a program in Node JS to insert multiple documents in MongoDB?
- d. Write a program in Node JS to update document in mongo db?
- e. Write a program in Node JS to delete single document in mongo db?

**Experiment 7:**

- a. Write a program in Node JS to display single document in mongo db?
- b. Write a program in Node JS to display multiple documents in mongo db?

**Experiment 8:**

Write a Java Script program using Node JS to send mail?

**Experiment 9:**

Write a Java Script program using Node JS to store the data from MongoDB to excel file? (Install append-stream using npm install append-stream)

**Experiment 10:**

Write a Java Script program to store and retrieve data from MongoDB using Node JS remotely?

**Experiment 11:**

Write a Java Script using Node JS to generate OTP CODE.

**Experiment 12:**

Write a Java Script program to perform Banking operations using NODEJS and MongoDB.

**Experiment 13:**

Write a MEAN stack application program to perform Blood Bank Management System.

**OUTCOMES:**

- Understand the dynamic web pages
- Understand how CRUD applications can be built
- Develop web design solutions using MEAN Stack

**III Year II Semester**

**L T P C**

**Code: 17EC651**

**0 3 3 2**

**IoT USING RASPBERRY Pi IAB  
(Skill Course Lab-I)**

**Pre- requisites:**

- A. IoT Basics
- B. Raspberry Pi Basics
- C. Python programming Basics

**A) IoT Basics:** IoT Introduction, Important Definitions and terminology, Architecture, Examples, communication Protocols

**B) Raspberry Pi Basics:** Different types of Raspberry pi models, Pin configuration of Raspberry pi Different types of OS for Raspberry Pi, OS installation into Raspberry pi.

**C) Python programming Basics:** Introduction to programming with Python, Data types, core objects and built in functions, conditional statements and loops, Functions, strings, Lists, Dictionaries, Tuples with examples.

Experiments: Interfacing devices with Raspberry Pi using Python Programming

1. LED Blinking with Raspberry pi.
2. Button/Switch Interfacing
3. Relay and Buzzer Interfacing
4. IR/ PIR sensor interfacing
5. Servo motor interfacing
6. Ultrasonic sensor interfacing
7. DHT11 sensor Interfacing
8. LCD Interfacing
9. Controlling relay from cloud
10. Implementing IoT Gateway
11. Implementing MQTT protocol
12. Building a weather monitoring system
13. Building Home Automation System