

LABORATORIES

College has 10 well equipped state of art laboratories with the latest configuration systems. Systems are connected via local area network to the Domain Server (VITS). Students are encouraged to engage themselves in getting practiced with laboratory experiments in their leisure hours by keeping the labs open even after the college hours.



COMPUTER LAB – 1



COMPUTER LAB – 2



COMPUTER LAB – 3



COMPUTER LAB – 4



COMPUTER LAB – 5



COMPUTER LAB – 6



COMPUTER LAB – 7



COMPUTER LAB – 8



COMPUTER LAB – 9



COMPUTER LAB – 10

LABORATORIES of Computer Science and Engineering

IV Year I Semester

DATA MINING LAB

This lab provides knowledge on data pre-processing, Classification, clustering and Association rule extraction. It deals with the various types of attributes. Accuracy is compared by using different algorithms. Visualization is also displayed for the given data mining functionality.

Course Objectives

- To obtain practical experience using data mining techniques on real world data sets.
- Emphasize hands-on experience working with all real data sets.

Course Outcomes

- Identify various data types of attributes on a given dataset.
- Model a decision tree for given dataset using WEKA.
- Construct a classifier using WEKA on a given data set and evaluate its accuracy.
- Design a data warehouse schema for a given case study.

PYTHON PROGRAMMING LAB

This lab covers core programming basics and program design with functions, Object-Oriented Programming, in-depth data and information processing techniques and high-performance programs designed to strengthen the practical expertise.

Course Objectives

- To be able to introduce core programming basics and program design with functions using Python programming language.
- To understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.
- To understand the high-performance programs designed to strengthen the practical expertise

Course Outcomes

- Make use of python scripting for developing applications
- Manipulate Lists, Tuples, Sets and dictionaries
- Import built in libraries & Create libraries
- Create practical & contemporary application such as web application and data analysis

MOBILE APPLICATION DEVELOPMENT LAB

It involves developing applications, user interface and URL related applications in android environment.

Course Objectives

- To learn how to develop Applications in android environment.
- To learn how to develop user interface applications.
- To learn how to develop URL related applications.

Course Outcomes

- Design android applications using layouts and controls.
- Design android applications using menus, notifications and files.
- Develop user interface applications in Android.
- Develop URL related applications in Android.

INTERNET OF THINGS LAB

It covers writing and testing on an Raspberry Pi and basic functionalities like Light an LED, Flash an LED, status of a bulb at a remote place (on the LAN) through web.

Course Outcomes

- Recommend to compile and execute python programming in Raspberry Pi.
- Make use of python program to light an LED.
- Build a file data as input, for the python program to light an LED.
- Elaborate the need for hardware and web application use in an IoT implementation.

WEB SCRIPTING LANGUAGES LAB

This lab covers Scripting Languages like Ruby, Perl, TCL and TK. The programs designed to strengthen the practical expertise.

Course Objectives

- To Understand the concepts of scripting languages for developing web-based projects
- To understand the applications the of Ruby, TCL, Perl scripting languages

Course Outcomes

- Design and test programs to solve mathematical problems.
- Develop programs Using Ruby Script.
- Develop Programs Using TCL Script.
- Develop Programs Using Perl Script.

III Year I Semester

DESIGN AND ANALYSIS OF ALGORITHMS LAB

It involves solving problems using divide and conquer strategy, backtracking strategy and greedy and dynamic programming techniques using Java.

Course Objectives

- To write programs in java to solve problems using divide and conquer strategy.
- To write programs in java to solve problems using backtracking strategy.
- To write programs in java to solve problems using greedy and dynamic programming Techniques.

Course Outcomes

- Divide and Conquer strategy to implement searching and sorting
- Backtracking paradigm to implement solutions to the problems by using operations of the graph
- Greedy techniques to optimize the solutions to the given problems
- Dynamic programming methodology with the help of principle of optimality to solve relevant problems

COMPUTER NETWORKS LAB

It covers the functionalities of various layers of OSI model, operating System functionalities, encryption and decryption concepts, finding of shortest route and configuration of routing table.

Course Objectives

- To Understand the functionalities of various layers of OSI model
- To understand the operating System functionalities

Course Outcomes

- Implement various data link layer framing methods and error detection mechanisms
- Design the shortest route between source and destination in the network.
- Design a broadcast tree for the given subnet and cipher text using DES algorithm and also decipher it.
- Create public key encryption to encode the given text using cryptography

SOFTWARE ENGINEERING LAB

It covers software engineering methodologies involved in the phases for project development, open source tools used for implementing software engineering methods, developing product-startups implementing software engineering methods and Open source Tools: StarUML / UMLGraph / Top cased.

Course Objectives

- To understand the software engineering methodologies involved in the phases for project development.
- To gain knowledge about open source tools used for implementing software engineering methods.
- To exercise developing product-startups implementing software engineering methods.
- Open source Tools: StarUML / UMLGraph / Topcased

Course Outcomes

- Analyze the problem and identify project scope and objectives.
- Identify the software requirements and prepare SRS document.
- Design the software using UML diagrams
- Develop the prototype of the product

II Year I Semester

C++ Programming Lab

It covers Object Oriented Programming concepts using the C++ language, virtual functions, handling formatted I/O and unformatted I/O, exception handling, file handling and developing applications for a range of problems using object-oriented programming techniques.

Course Objectives

- Introduces object-oriented programming concepts using the C++ language.
- Introduces the principles of data abstraction, inheritance and polymorphism;
- Introduces the principles of virtual functions and polymorphism
- Introduces handling formatted I/O and unformatted I/O
- Introduces exception handling

Course Outcomes

- Apply Object oriented features and C++ concepts.
- Apply the concept of polymorphism and inheritance.
- Implement exception handling and templates.
- Develop applications using Console I/O and File I/O.

ANALOG AND DIGITAL ELECTRONICS LAB

It involves introducing components such as diodes, BJTs, FETs, various types of amplifier circuits, design of digital circuits and fundamental concepts used in the design of digital systems and combinational logic circuits and sequential circuits and logic families and realization of logic gates.

Course Objectives:

- To introduce components such as diodes, BJTs and FETs.

- To know the applications of components.
- To give understanding of various types of amplifier circuits
- To learn basic techniques for the design of digital circuits and fundamental concepts used in the design of digital systems.
- To understand the concepts of combinational logic circuits and sequential circuits.

Course Outcomes

- Analyze the characteristics of Full wave rectifier.
- Analyze the characteristics of different Transistor amplifier configurations.
- Implement Boolean expressions using universal logic gates.
- Design and verify simple combinational and sequential circuits using IC s of different logic families.

DATA STRUCTURES LAB

It covers various concepts of C programming language, searching and sorting algorithms, stacks and queues. It gives Ability to develop C programs for computing and real-life applications using basic elements like control statements, arrays, functions, pointers and strings, and data structures like stacks, queues and linked lists.

Course Objectives

- It covers various concepts of C programming language
- It introduces searching and sorting algorithms
- It provides an understanding of data structures such as stacks and queues.

Course Outcomes

- Implement various linear data structures.
- Implement various non linear data structures.
- Compare various searching and sorting algorithms.
- Ability to implement trees and graphs traversals.

IT WORKSHOP LAB

It includes training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point, Publisher and LaTeX and MS/equivalent (FOSS) tool Power Point.

Course Objectives

The IT Workshop for engineers is a training lab course spread over 60 hours. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point and Publisher.

Course Outcomes

- Construct a Personal Computer and prepare the computer ready to use.

- Prepare the Documents & slide presentations using Word processors and presentation tools.
- Apply internet concepts to connect two or more computers for information sharing.
- Build a dual mode operating system PC by installing OS Software.

GENDER SENSITIZATION LAB

It is an Activity-based Course which covers sensibility with regard to issues of gender in contemporary India, providing a critical perspective on the socialization of men and women, key biological aspects of genders, debates on the politics and economics of work, reflect critically on gender violence.

Course Objectives

- To develop students' sensibility with regard to issues of gender in contemporary India.
- To provide a critical perspective on the socialization of men and women.
- To introduce students to information about some key biological aspects of genders.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Course Outcomes

- Develop a better understanding of important issues related to gender in contemporary India
- Analyze basic dimensions of the biological, sociological, psychological and legal aspects of gender
- Develop a sense of appreciation of women in all walks of life and will be equipped to work and live together as equals.
- Examine the new laws for women protection & relief, and empower students to understand and respond to gender violence

III Year II Semester

CRYPTOGRAPHY AND NETWORK SECURITY LAB

It covers encryption and decryption, DES algorithm logic, Blowfish algorithm logic, Rijndael algorithm logic, RSA algorithm, SHA-1 algorithm, MD5 algorithm using java and Diffie-Hellman Key Exchange mechanism using HTML and JavaScript.

Course Outcomes

- Experiment with various cryptographic techniques to encode and decode the given text.
- Develop solutions using symmetric key algorithms.
- Build solutions using public key cryptographic algorithms.
- Apply various secure hash algorithms to generate hash key.

WEB TECHNOLOGIES LAB

It covers developing web applications using technologies HTML, Javascript, AJAX, PHP, JDBC, XML, Tomcat Server, Servlet, JSP, usage of LAMP Stack for web applications.

Course Objectives:

- To enable the student to program web applications using the following technologies HTML, Javascript, AJAX, PHP, Tomcat Server, Servlets, JSP

Course Outcomes

- Utilize servers and tools like Apache Tomcat and MySQL database, Eclipse.
- Develop web based applications using HTML, CSS, Javascript.
- Develop web based applications using XML
- Develop web based applications using Servlet, JSP.

ADVANCED ENGLISH COMMUNICATION SKILLS LAB

This Lab is related to improving soft skills using AECS software. Student will have practical exposure on Group Discussion, Resume Writing.

Course Objectives

This Lab focuses on using multi-media instruction for language development to meet the following targets:

- To improve students' fluency in spoken English
- To enable them to listen to English spoken at normal conversational speed
- To help students develop their vocabulary
- To read and comprehend texts in different contexts
- To communicate their ideas relevantly and coherently in writing
- To make students industry-ready
- To help students acquire behavioral skills for their personal and professional life
- To respond appropriately in different socio-cultural and professional contexts

Course Outcomes

- Build sound vocabulary and its proper use contextually.
- Make use of functional English effectively in formal and informal contexts.
- Develop effective speaking skills and Maximize job prospects.
- Plan and make different forms of presentation using various techniques.

II Year II Semester

JAVA PROGRAMMING LAB

Java is a programming language designed for use in the distributed environment of the Internet. It enforces an object-oriented programming model. Java can be used to create complete applications that may run on a single computer or be distributed among servers and clients in a network. Java has no operating system-unique extensions or variations. Java is generally regarded as the most strategic language in which to develop applications for the Web. In this lab Students will be able to write core java programs using SDK 1.8 using Eclipse.

Course Objectives

- To write programs using abstract classes.
- To write programs for solving real world problems using java collection frame work.
- To write multithreaded programs.
- To write GUI programs using swing controls in Java.
- To introduce java compiler and eclipse platform.
- To impart hands on experience with java programming.

Course Outcomes

- Make use of JDK, Eclipse platform for developing java programs.
- Build programs using abstract classes and multithreading concepts.
- Develop programs using GUI components.
- Develop Programs using Quick Sort and Bubble Sort.

DATABASE MANAGEMENT LAB

A database management system (DBMS) is a computer software application that interacts with the user, other applications, and the database itself to capture and analyze data. A general-purpose DBMS is designed to allow the definition, creation, querying, update, and administration of databases. This Lab is related to DBMS theory where they use MySql Database. Student will have practical exposure on designing, developing and querying database.

Course Objectives

- Introduce ER data model, database design and normalization
- Learn SQL basics for data definition and data manipulation

Course Outcomes

- Formulate the queries using DML, DDL, DCL commands.
- Enforce integrity constraints on databases.
- Implement triggers, stored procedures and cursors.

OPERATING SYSTEMS LAB

This Lab is related to OS theory where students are able to compare and contrast various CPU scheduling algorithms, page replacement algorithms, memory allocation and file allocation strategies.

Course Objectives

- To provide an understanding of the design aspects of operating system concepts through simulation
- Introduce basic Unix commands, system call interface for process management, interprocess communication and I/O in Unix

Course Outcomes

- Evaluate CPU Scheduling Algorithms and Memory management techniques.
- Construct deadlock detection and avoidance algorithms.
- Solve classical problems of synchronization using semaphores.
- Evaluate inter process communication mechanisms using system calls and pipes.

I Year II Semester

PROGRAMMING FOR PROBLEM SOLVING LAB

It covers working with an IDE to create, edit, compile, run and debug programs, analyzing various steps in program development, developing programs to solve basic problems by understanding basic concepts in C like operators, control statements etc, developing modular, reusable and readable C Programs using the concepts like functions, arrays etc. writing programs using the Dynamic Memory Allocation concept, create, read from and write to text and binary files.

Course Objectives

- To work with an IDE to create, edit, compile, run and debug programs
- To analyze the various steps in program development.
- To develop programs to solve basic problems by understanding basic concepts in C like operators, control statements etc.
- To develop modular, reusable and readable C Programs using the concepts like functions, arrays etc.
- To Write programs using the Dynamic Memory Allocation concept.
- To create, read from and write to text and binary files

Course Outcomes

- Build programs using control structures to solve simple mathematical problems.
- Apply the concepts of user defined, pre-defined and file handling functions.
- Develop modular, reusable and readable C Programs using the concepts like functions, arrays etc.

- Develop searching and sorting algorithms using C programs.