- ## Computer Design

Objective

This laboratory covers the hardware & software design requirements for PC-based system Design. The student can design input/output interface and write the required software for different applications.

Course outline:-

Exp. No. 1: Introduction to Parallel Port Interface.
Exp. No. 2: Data Transfer using PC Parallel Port.
Exp. No. 3: Analog O/P Interface Design.
Exp. No. 4: Digital Voltmeter Design.
Exp. No. 5: Sinusoidal Waveform Generator Design.
Exp. No. 6: Designing and Interfacing a Digital Joystick.
Exp. No. 7: Serial (RS-232) Port Interface (Part 1).
Exp. No. 8: Serial (RS-232) Port Interface (Part 2).
Exp. No. 9: Dealing with Parallel Port under Visual Basic.
Exp. No. 10: Dealing with Serial Port Under Visual Basic.

- ## Logic circuit lab :-

Objective

Design and contraction of combinational and sequential logic circuits. The students use discrete components to build and test logic circuits.

Course outline:-

Exp. No. 1: Digital Logic Gates.
Exp. No. 2: Simplification of Boolean Functions.
Exp. No. 3: Adders & Subtractors.
Exp. No. 4: Decoders.
Exp. No. 5: Multiplexers.
Exp. No. 6: Flip Flops Fundamentals.
Exp. No. 7: Design Using State Diagrams : Part (1).
Exp. No. 8: Design Using State Diagrams : Part (2).
Exp. No. 9: Counters.
Exp. No. 10: Shift Registers.

- ## Microprocessor lab:-

Objective:-

The objective of this lab. is to understand the concepts of low level programming and its applications in engineering. The students will write and debug assembly language programs using the Microsoft Macro Assembler (MASM)

Course Outline

Introduction to Computers and Microprocessors.
Exp.No.1: Introduction to MASM
Exp.No.2: Introduction in Operation Nida 500(Part 1)
Exp.No.3: Introduction in Operation Nida 500(Part 2)
Exp.No.4: Arithmetic and Logic Instructions

Exp.No.5: Data Transfer
Exp.No.6: Mathematical Functions and Searching
Exp.No.7: Sorting
Exp.No.8: Parallel Interface and Timer Unit
Exp.No.9: Microprocessors Communication
Mini Project

- ## Computer Networks

Objective

The objective of this lab is to understand the concepts of computer networks design and management.

It covers the realization of a small LAN from scratch, and configure all its hosts and server to work properly.

Course Outline

Exp. No. 1: Physical Layer Concepts & UTP Termination
Exp. No. 2: Network Interface Card (NIC) Installation and Configuration
Exp. No. 3: Star Topology LAN Installation and Configuration
Exp. No. 4: IP Addressing Administration for Star Topology LAN
Exp. No. 5: Subnetworking Administration for Star Topology LAN
Exp. No. 6: Installing and Practicing Windows 2000 server
Exp. No. 7: Managing User Accounts in Win2K Professional
Exp. No. 8: Managing User Rights in Win2k Professional
Exp. No. 9: Managing NTFS File Permissions in Win2K Professional
Exp. No. 10: Managing Domain User Accounts Win2K Server

- ## Software 1

Objective

The student will learn with practice how to write, compile and run a programm.

He will understand the engineering applications of C++ and Object Oriented programming techniques.

Course Outline

Exp. No. 1: Expressions
Exp. No. 2: IF-Else
Exp. No. 3: For and While statements
Exp. No. 4: Arrays
Exp. No. 5: Structures and Classes
Exp. No. 6: Pointers
Exp. No. 7: Tampletes
Exp. No. 8: Operator overloading
Exp. No. 9: Pointers and arrays
Exp. No. 10: Queue and stack data structure

- ## Software 2

Objective

Understand the Abstract data types (ADTs) and the comparative analysis of algorithm using Object Oriented Programming principles and features in engineering application.

Course Outline

Exp. No. 1: Features Review about C++.
Exp. No. 2: Classes Template and Friend Function.
Exp. No. 3: Classes Overloading.
Exp. No. 4: Bubble and Insertion Sort.
Exp. No. 5: Search Algorithms and Inheritance.
Exp. No. 6: File Processing.
Exp. No. 7: Linear List.
Exp. No. 8: Linked List Applications (Chain Binary Sort)
Exp. No. 9: Stack Applications (Polish Notation)
Exp. No. 10: Queue Applications (Write Routing)
Exp. No. 11: Recursion Binary Search Trees

- ## Software 3

Objective

Using the principles & features of Rational Database software in the design and implements of computer based system for engineering application.

Course Outline

Exp. No. 1: Introduction to Rational Database.
Exp. No. 2: Introduction to Rational RequsitePro.
Exp. No. 3: Rational RequistePro Requirements, Documents and requirement Views.
Exp. No. 4: Visual Modeling Using Rational Rose.
Exp. No. 5: Introduction to Diagrams and Class Diagram Overview.
Exp. No. 6: Rational Unified Process.
Exp. No. 7: Rational SoDA.
Exp. No. 8: Introduction to Rational Robot.
Exp. No. 9: Introduction to SQL Statements (1).
Exp. No. 10: Introduction to SQL Statements (2)
Exp. No. 11: Working with Oracle Software.