**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - III**

**Subject Code: - 3ETC06 Subject: -** **Digital System Design**

**List of Experiments:-**

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| 1. To verify V-I characteristics of p-n junction diode and obtain static and dynamic resistance values. |
| 1. To analyze and calculate efficiency and ripple factor of Half wave, Full wave and Bridge wave rectifier. |
| 1. To analyze different types of filter circuits and calculate its ripple factor for C- filter. |
| 1. To analyze Zener diode as a voltage regulator. |
| 1. To analyze the response of RC Low pass circuit for a square wave input for different time Constant i) RC >> T ii) RC = T iii) RC << T. |
| 1. To observe the response of RC High pass circuit for a square wave input for different time Constants i) RC >> T ii) RC = T iii) RC << T. |
| 1. To obtain output characteristics of the clipping circuits for different reference voltages and to verify the responses. |
| 1. To study and observe the performance of various clamper circuit. |
| 1. To verify characteristics of CE mode of BJT and compute its parameters such as gain(β),input and output Impedance. |
| 1. To plot frequency response of RC coupled amplifier and determine its bandwidth. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - III**

**Subject Code: - 3ETC07 Subject:- Digital System Design Lab**

**List of Experiments:-**

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| 1. Implementation and verification of various logic gates (NAND, NOR, EX-OR, NOT, EX-NOR, AND, OR) using IC. |
| 1. Implementation and verification of NAND and NOR gate as universal gate. |
| 1. Implementation and verification of operation of 4 bit magnitude comparator using IC 7485. |
| 1. Implementation and verification of 8:1 MUX using IC74151. |
| 1. Implementation and verification of 1:4 DEMUX using IC74155. |
| 1. To design and verify the operation of full adder circuit using IC7408, IC7432, and IC7486. |
| 1. To verify the operation of various Flip/Flops and to realize their Truth table. |
| 1. To verify the operation of seven segment Display. |
| 1. To verify the operation of various shift Registers. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - III**

**Subject Code: - 3ETC08 Subject:- Object Oriented Programming Lab**

**List of Experiments:-**

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| 1. To execute a C++ program to swap two variables    1. Using third variable    2. b) Without using third variable. |
| 1. To execute a program in C++ to print the area and perimeter of a rectangle. |
| 1. To execute a C++ program to generate all the prime numbers between 1 to n, where n is a value supplied by the user. |
| 1. To execute a program in C++ to implement parameterized constructor and copy constructor. |
| 1. To execute a C++ program to implement function overloading. |
| 1. To execute a program in C++ to illustrating the use of virtual functions in a class. |
| 1. To execute a program in [C++ to Check whether a character is Vowel or Consonant.](https://www.programiz.com/cpp-programming/examples/vowel-consonant) |
| 1. To execute a program in C++ to Find All Roots of a Quadratic Equation |
| 1. To execute a java program to calculate area of circle. |
| 1. To execute a program in Java that reads a umber in meters, converts it to feet, and displays the result. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - III**

**Subject Code: - 3ETC09 Subject:- Electronic Workshop**

**List of Experiments:-**

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| 1. To understand the basics of Multimeter and CRO, Digital Storage Oscilloscope (DSO) and Function Generator. |
| 1. 2) To examine and distinguish various types of Resistors    1. 1. Fixed & Variable Resistors. 2. Fixed & Variable Capacitors. |
| 1. To analyse and learn different types of switches and relays. |
| 1. To examine and learn different types of cables and connectors. |
| 1. To analyse different types of transformers (Step up, Step Down, LVDT, small package) and Inductor. |
| 1. To analyse different types of diodes and Opto-Devices: LED, Photo Diode used in various application. |
| 1. To analyse different types of sensors like temperature sensors, pressure sensors, light detecting sensors, sound sensors, smoke sensors. |
| 1. To perform component mounting on breadboard using given circuit diagram. |
| 1. To analyse with different types of Transistors. |
| 1. To perform Etching and drilling of PCB. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - IV**

**Subject Code: - 4ETC09 Subject:- Signals & Systems Lab**

**List of Experiments:-**

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| 1. To Study signal processing functions used in MATLAB/SCILAB. |
| 1. To execute a program to generate standard continuous Time Signals. |
| 1. To execute a program to generate standard discrete Time Signals. |
| 1. To execute a program to perform basic operations on Signals. |
| 1. To execute a program to find even and odd parts of a signal. |
| 1. To execute a program to check periodicity of signals. |
| 1. To execute a program to find the energy and power of a signal. |
| 1. To execute a program to identify a given system as linear/ non-linear, time variance/ invariance property of a given system. |
| 1. To execute a program to demonstrate the time domain sampling of band limited signals (Nyquist theorem). |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - IV**

**Subject Code: - 4ETC08 Subject:- Network Theory Lab**

**List of Experiments:-**

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| 1. To verify Node Analysis for Electric Circuit. |
| 1. To verify Mesh Analysis for Electric Circuit. |
| 1. To verify Superposition Theorem for a given Network. |
| 1. To verify Thevenin's Theorem for a given Network. |
| 1. To verify Maximum Power Transform Theorem for a given Network. |
| 1. To verify Norton's Theorem for a given Network. |
| 1. To verify Reciprocity Theorem for a given Network. |
| 1. To determine and verify Open Circuit (Z) Impedance Parameters of a given Two Port Network. |
| 1. To determine and verify Short Circuit (Y) Admittance Parameters of a given Two Port Network. |
| 1. To analyze RLC Series Circuits Using Any Simulation Tool |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - IV**

**Subject Code: - 4ETC06 Subject:- Analog & Digital**

**Communication-Lab**

**List of Experiments:-**

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| 1. To Study Amplitude Modulation by Varying Modulation Index & Demodulation. |
| 1. To analyze SSB-SC Balanced Modulator. |
| 1. To analyze DSB-SC Balanced Modulator. |
| 1. To perform Frequency Modulation. |
| 1. To analyse Frequency demodulation using Phase Shift Discriminator. |
| 1. To analyze Pre-emphasis and De-emphasis circuits in FM transmitter. |
| 1. To generate the pulse Amplitude modulated and demodulated signals. |
| 1. To perform pulse Position modulation and demodulation. |
| 1. To perform TDM PAM modulation & Demodulation. |
| 1. To perform PSK and DPSK. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Second Year Semester: - IV**

**Subject Code: - 4ETC07 Subject: - Analog Circuits Lab**

**List of Experiments:-**

1. To verify Op-Amp IC 741 as an inverting and non- inverting amplifier with a specific gain value.
2. To demonstrate integrator and differentiator circuit using Op-Amp IC 741.
3. To verify RC- phase shift oscillator using Op-Amp IC 741.
4. To verify Op-Amp IC 741 as a Schmitt trigger and calculate the hysteresis voltage.
5. To verify operation of astable multivibrator using Op-Amp IC 741.
6. To plot frequency response of first order Butterworth LPF for a specific pass-band gain and cut-off frequency.
7. To verify characteristics of PLL.
8. Application of PLL as AM detector/FM detector/frequency translator (Any one application)
9. Design transistorized series voltage regulator
10. Design a low voltage variable regulator to 7V using IC 723.

**Department of Electronics and Telecommunications Engineering**

**Year: - Third Year Semester: - VI**

**Subject Code: - 6ETC06 Subject: - Communication Network Lab**

**List of Experiments:-**

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| 1. To Study basic networking commands. |
| 1. Introduction and simulation of CISCO Packet Tracer simulator software. |
| 1. To perform an experiment to login in to different networking devices and configuring devices by using Console, SSH and Telnet. |
| 1. To implement LAN and check the connectivity by using Ping command by using physical networking devices. |
| 1. Implementation of the VLAN. |
| 1. To Implement network with IP Addressing Scheme using CISCO Packet Tracer. |
| 1. To Implement WAN network with Static routing and any one Dynamic Routing protocol using CISCO Packet Tracer. |
| 1. To configure dynamic IP allocation by using DHCP configuration on Router or DHCP server in the Network using CISCO Packet Tracer. |
| 1. To install and configure wireless LAN network using CISCO Packet Tracer. |
| 1. To implement and configure FTP server and client model in network and demonstrate simple file transfer from the server to one or many node of the network and vice versa.   **Department of Electronics and Telecommunications Engineering**  **Year: - Third Year Semester: - V**  **Subject Code: - 5ETC06 Subject: - Microcontroller Lab**    **List of Experiments:-**   |  | | --- | | 1. To execute a program to generate 100 KHz Square wave using 8051 Microcontroller. | | 1. To execute a program to toggle all bits of port P1 continuously using 8051 Microcontroller. | | 1. To execute a program to interface LED to any one pin of port P1 and ON & OFF it 100 times using 8051 Microcontroller. | | 1. To execute a program to interface 16X2 LCD display with 8051 and display message “Hello World” using 8051 Microcontroller. | | 1. To execute a program to interface Seven Segment Display to 8051 and display numbers 1,2,3,4 on it using 8051 Microcontroller. | | 1. To execute a program to interface Digital to Analog Converter with 8051 using 8051 Microcontroller. | | 1. To execute a program for LED Blinking using 8051 Microcontroller Programming in C. | | 1. To execute a program to send a byte serially one bit at a time through P1.2. Send LSB first. | | 1. To execute a program to interface and rotate DC motor clockwise and anticlockwise using 8051 Microcontroller | | 1. To execute a program to interface and rotate Stepper motor clockwise and anticlockwise using 8051 Microcontroller | |

**Department of Electronics and Telecommunications Engineering**

**Year: - Third Year Semester: - V**

**Subject Code: - 5ETC07 Subject: -Digital signal & processing Lab**

**List of Experiments:-**

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| Introduction to Scilab and basic command of scilab |
| 1. To execute a program to generate different standard discrete signals. |
| 1. To execute a program to observe different operations on signal. |
| 1. To execute and determine the convolution and cross correlation of given |
| signals |
| 1. To analyze the z-transform of given signal and plot pole-zero graph of given |
| function |
| 1. To analyze the magnitude response of Butterworth low pass filter. |
| 1. To design and analyze the Low Pass FIR filter using Kaiser window |
| technique. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Third Year Semester: - VI**

**Subject Code: - 6ETC07 Subject: -** **Electronics Circuit Design Lab**

**List of Experiments:-**

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| 1. To design and perform static timing analysis, parametric analysis of CMOS invertor of silicon using appropriate ASIC design tool. |
| 1. To design and perform static timing analysis, parametric analysis of two input NAND gate on silicon using appropriate ASIC design tool. |
| 1. To design and perform static timing analysis, parametric analysis of two input NOR gate on silicon using appropriate ASIC design tool. |
| 1. To design and perform static timing analysis, Parametric analysis of D Flip-flop with reset on silicon using appropriate ASIC design tool. |
| 1. To write and execute Verilog code for different gate and simulate with test bench. |
| 1. To write and execute Verilog code for Half adder, Full adder and simulate with test bench. |
| 1. To write and simulate a Verilog program for 8:1 Multiplexer and simulate with test bench. |
| 1. To write and execute Verilog code for D Flip Flop and simulate with test bench. |
| 1. To design and perform transistorized series voltage regulator. |
| 1. To write and execute an application of PLL as AM detector/FM detector/frequency translator. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Third Year Semester: - V**

**Subject Code: - 5ETC08 Subject: -** **Power Electronics Lab**

**List of Experiments:-**

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| 1. To verify the characteristics of SCR |
| 1. To verify the characteristics of DIAC |
| 1. To verify the characteristics of TRIAC |
| 1. To verify the characteristics of Power MOSFET |
| 1. To verify the UJT firing circuit for SCR |
| 1. To verify the working of SCR Commutation |
| 1. To verify the working of basic/ improved series inverter |
| 1. To verify the working of parallel inverter. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Third Year Semester: - VI**

**Subject Code: - 6ETC08 Subject: -** **Python Programming Lab**

**List of Experiments:-**

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| 1. Write and execute of expressions involving arithmetic, relational, logical, and bitwise operators using python code. | |
| 1. Write and execute Python program to illustrate the various functions of math module. | |
| 1. Write and execute a Python program that reads an integer value and prints “leap year” or “not a leap year” | |
| 1. Write and execute a Python function that takes a number as an input from the user and compute its factorial. | |
| 1. Write and execute a Python function that takes a number as an input and determine whether it is prime or not. | |
| 1. Write and execute a Python function that takes a string as an input from the user and determines whether it is palindrome or not. | |
| 1. Write and execute a Python function that prints a dictionary where the keys are numbers between 1 and 5 and values are cubes of the keys. | |
| 1. Write and execute a Python function to generate the Fibonacci sequence till a given number “n”. | |
| 1. Write and Execute python program to print a number is positive/negative using if-else. | |
| 1. Write and Execute python program to find factorial of a given number using functions   **Department of Electronics and Telecommunications Engineering**  **Year: - Third Year Semester: - V**  **Subject Code: - 5ETC09 Subject: Electronic lab based on Instrumentation**    **List of Experiments:-**   |  | | --- | |  | | 1. Study of Instrumentation amplifier | | | 1. To perform measurement of strain using strain gauge | | | 1. To perform measurement of temperature using thermocouple. | | | 1. To perform measurement of temperature using thermistor. | | | 1. To perform measurement of temperature using resistance temperature detector (RTD). | | | 1. To perform measurement of tank liquid level using capacitance level probe. | | | 1. To perform measurement of displacement using LVDT. | | | 1. To perform and analyse the Light dependant resistance characteristics with intensity of light. | | | 1. To perform and determine characteristics of optical transducers using LDR | | | 1. To perform and determine sound pressure level using sound level meter | | | |

**Department of Electronics and Telecommunications Engineering**

**Year: - Fourth Year Semester: - VII**

**Subject Code: - 7ETC06 Subject: Cryptography & Network Security**

**List of Experiments:-**

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1. To Study the network security Model.
2. To perform and demonstrate use of encryption algorithm which perform various substitution on the plain text and use of DES algorithm with the use of secret key as I/P to algorithm.
3. To perform and demonstrate use of DES encryption and decryption algorithm that how it is reverse of encryption.
4. To perform encryption by using symmetric key.
5. To perform Cyclic Redundancy Check.
6. To implement RSA encryption /decryption algorithm.
7. To perform an experiment to find MAC (Media Access Control) address in to the network interfaces. This address is assigned to network interfaces for communication on the physical network segment.
8. To implement MD5 algorithm.
9. To execute a Python program to perform Encryption and Decryption using the following algorithms: 1) Ceaser cipher 2) Substitutional cipher
10. To execute a Python program to implement the Blowfish algorithm

**Department of Electronics and Telecommunications Engineering**

**Year: - Fourth Year Semester: - VII**

**Subject Code: - 8ETC05 Subject: Embedded Systems Lab**

**List of Experiments:-**

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| 1. To execute an AVR C Program to send data from 00 to FF to PORTB of ATMEGA32 by giving sufficient delay between out operation.. |
| 1. To execute an AVR C program to blink LED connected to PORTB of ATMEGA32 ON and OFF at 1sec interval with internal RC oscillator at 1Mhz. |
| 1. To execute an AVR C program to blink LED connected to PB1 at 1sec interval while keeping LED on PB7 on using AND, OR operations and with generalized approach. |
| 1. To execute an AVR C program to Convert Packed BCD 0x29 to ASCII and display the bytes on PORTB. |
| 1. To execute an AVR C program to Convert ASCII digits “4” and “7” to packed BCD and display them on PORTB. |
| 1. To execute an AVR C program to Convert Binary (hex) to decimal and display the digits on PORTB with one second delay between each digit. |
| 1. To execute an AVR C program to read switches connected to PORTD and output the contents to LEDs connected to PORTB. |

**Department of Electronics and Telecommunications Engineering**

**Year: - Fourth Year Semester: - VII**

**Subject Code: - 7ETC07 Subject: Digital Image & Video Processing**

**List of Experiments:-**

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1. To Write and execute a program to read and display image using mat lab (1) Basic Commands (2) Image resize (3) Black & White, colour and grey scale image (4) Separate R, G, B plans.
2. To Write and execute program to obtain the following operations, (1) Negative Image (2) Flip Image (3) Contrast Stretching
3. To write and execute program for image arithmetic operations, (1) Addition and subtraction (2) Different brightness
4. To write and execute programs for image logical operations, (1) AND (2) OR (3) NOT
5. To write and execute program for geometric transformation of image, (1) Rotation (2) Shearing in x and y direction
6. To write a program for histogram calculation and equalization
7. Write and execute program to add the noise Salt & Pepper, Gaussian noise and remove it by using averaging and median filter
8. To implement and execute spatial filter for demonstrate smoothing and sharpening of the image.
9. To execute a program for computation of Mean, Standard Deviation, correlation coefficient of the Image.
10. To Implement and execute Smoothening Filters(Mean and Median filtering of an Image)

**Department of Electronics and Telecommunications Engineering**

**Year: - Fourth Year Semester: - VII**

**Subject Code: - 8ETC06 Subject: Microwave Theory and Techniques Lab**

**List of Experiments:-**

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| 1. To study different Microwave Components. |  |
| 1. To study and verify the characteristics of Reflex Klystron tube |  |
| 1. To study and verify the characteristics of Gunn diode |  |
| 1. To determine voltage standing wave ratio (VSWR) with different loads |  |
| 1. To match the unknown load with the system using slide screw tuner |  |
| 1. To determine guide wavelength & frequency in a rectangular waveguide working on TE mode |  |
| 1. To perform Calibration of variable attenuator |  |
| 1. To determine load impedance with the help of smith chart |  |
| 1. To study and verify directional coupler |  |
| 1. To study and verify various techniques of measuring unknown frequency of a microwave generator |  |

**Department of Electronics and Telecommunications Engineering**

**Year: - Fourth Year Semester: - VII**

**Subject Code: - 7ETC08 Subject: PME Lab**

**List of Experiments:-**

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| 1. To prepare a real time project feasibility report containing technical appraisal. |
| 1. To prepare a real time project feasibility report containing environment appraisal. |
| 1. To prepare a real time project feasibility report containing market appraisal, including market survey for forecasting future demand and sales. |
| 1. To prepare project cost estimation for any given project. |
| 1. To prepare projected financial statements for any given project. |
| 1. To prepare Entrepreneurial motivation document. |
| 1. To build up Social Entrepreneurial opportunities and successful model. |
| 1. To prepare a list of skills to become a good Entrepreneur. |