Course Name: **Computer Programming Lab**
Course Code: **CS-102**

Contact Hours/Week: **2P** Course Credits: **01**

Course Objectives

- To provide skills for designing flowcharts and writing algorithms
- To provide skills for writing C programs
- To enable the students to debug programs

List of Experiments

1. Familiarity with Windows utilities and basic Linux commands
2. Programs related to operators and evaluation of expressions
3. Programs to illustrate use of arrays
4. Programs on operations over strings
5. Programs related to use of functions
6. Using pointers in programs
7. Programs on logical operators
8. Programs making use of structures and unions
9. Programs to perform operations over various data structures viz, linked lists, stacks, trees, etc.
10. Programs that read/write data from/to files
11. Programs using preprocessor directives
12. Use of command line arguments in program
13. Programs using graphics tools

Note: *The concerned Course Coordinator will prepare the actual list of experiments/problems at the start of semester based on above generic list.*

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Identify and abstract the programming task involved for a given problem
CO2: Design and develop modular programming skills
CO3: Trace and debug a program

Course Name: **Engineering Physics Lab**

Course Code: **PH-102**

Contact Hours/ Week: **2P** Course Credits: **01**

Course Objectives

- To gain practical knowledge by applying the experimental methods to correlate with the theory
- To learn the usage of electrical and optical systems for various measurements
- Apply the analytical techniques and graphical analysis to the experimental data
- To develop intellectual communication skills and discuss the basic principles of scientific concepts in a group

List of Experiments

1. To determine the specific resistance of a material wire using a post office box.
2. To find the area of a rectangle (or height of an inaccessible object) using a sextant.
3. Conversion of a galvanometer into Ammeter and Voltmeter of given range.
4. To verify the inverse square law of magnetism.
5. Study the variation of magnetic field with distance along the axis of a circular coil carrying current and to find the radius of the coil.
6. To determine the refractive index of a glass/ liquid (water) using Spectrometer.
7. To determine the wavelength of light using Newton's ring apperatus.
8. To verify the inverse square law for the intensity of radiation from a source of light.
9. To determine the wavelength of the Laser light using diffraction method.
10. To find magnifying power of a telescope by linear method.
11. To measure Young's modulus by bending of beam method.
12. Study of the attenuation and propagation characteristics of an optical fiber cable.
13. Other experiments as and when made available time to time.

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Handle equipments and take measurements and record data techniques for the experiments

CO2: Experimentally realize the physical phenomenon/ effects

CO3: Use different systems and instruments to measuring parameters with precision

CO4: Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results

Course Name: **Electronics Engineering Lab**
Course Code: **EC-102**

Contact Hours/Week: **2P** Course Credits: **01**

Course Objectives

- Familiarization with electronic components and equipments
- Validate and verify the characteristics of various electronic devices
- Implementation of electronic circuits using different electronic components

List of Experiments

1. Familiarization of electronic components and equipments like CRO, function generator and power supplies etc.
2. To study the V-I characteristics of p-n junction diode and determine its static and dynamic resistance.
3. To study the characteristics of Zener diode and hence, calculate the dynamic resistance.
4. To study voltage regulator circuit using Zener diode.
5. To study and plot the waveform of half wave and full wave rectifier with and without capacitor filter.
6. To study and plot the input and output characteristics of CE (Common Emitter) transistor configuration and calculate its input and output resistance.
7. To study and plot the input and output characteristics of CB (Common Base) transistor configuration and calculate its input and output resistance.
8. To study and plot the input and output characteristics of CC (Common Collector) transistor configuration and calculate its input and output resistance.
9. To study the characteristics of FET (Field Effect Transistor) and calculate its dynamic resistance (r_d), mutual conductance (g_m) and amplification factor (μ).
10. To study the frequency response of single stage CE amplifier circuit using BJT and calculate the bandwidth (3 dB).
11. To study the frequency response of single stage amplifier circuit using FET and calculate the bandwidth (3 dB).
12. To study self bias circuit and calculate zero signal value of current and voltage.

Note: *The concerned Course Coordinator will prepare the actual list of experiments/problems at the start of semester based on above generic list.*

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Understanding of different meters and instruments for measurement of electronic quantities
CO2: Develop skills for designing electronics circuits and its practical implementation on breadboard
CO3: Understanding the characteristics of different electronic devices like diodes, BJT and FET