## About Us

Hello readers,
We have designed some projects for the courses Digital Logic Design (EC261) and Waves and Electromagnetics (PH170). The collaborators for this project are Jayesh Chak, K. Anamithra, Kavati Sainadhudu, Krityuk Kumar, Kudhiti Krishna Kishore, Lavanya Bansod, and Lopinti Vijay Venkata Siva Sai. We hope this will help you a lot throughout your learning.
The objective and step-by-step guide to access those are given below.

### Experiment-1: Cartesian Converter

**Objective: To convert Cartesian Coordinates to Spherical and Cylindrical Coordinates.**

Step-1: Enter the x, y and z coordinate values.

Step-2: Click "Convert to cylindrical" to get the cylindrical conversion of given cartesian coordinates.

Step-3: Click "Convert to spherical" to get the spherical conversion of given cartesian coordinates.

It will perform the required Conversion and display the value.

### Experiment-2: Cylindrical Converter

**Objective: To convert Cylindrical Coordinates to Spherical and Cartesian Coordinates.**

Step-1: Enter the $\rho$, $\varphi$ and z coordinate values.

Step-2: Click "Convert to spherical" to get the spherical conversion of given cylindrical coordinates.

Step-3: Click "Convert to cartesian" to get the cartesian conversion of given cylindrical coordinates.

It will perform the required Conversion and display the value.

## Experiment-3: Spherical Converter

**Objective: To convert Spherical Coordinates to Cylindrical and Cartesian Coordinates.**

Step-1: Enter the r, θ and φ coordinate values.

Step-2: Click "Convert to cylindrical" to get the cylindrical conversion of given spherical coordinates.

Step-3: Click "Convert to cartesian" to get the cartesian conversion of given spherical coordinates.

It will perform the required Conversion and display the value.

## Experiment-4: Number System Conversion

**Objective: To convert one number system to another. The number system consists of Binary, Decimal, Hexadecimal, Octal numbers.**

Step-1: In first block, choose the number system using drop down menu, that needs to be converted.

Step-2: For first block, choose the number system using drop down menu, in which the number needs to be converted.

Step-3: In the first text box, enter the value needs to be converted.

Step-4: Click on "Convert".

The converted value in the required number system will be displayed in second text box.

## Experiment-5: Modulo-16 Gray Code Counter

**Objective: To design Modulo-16 Gray Code Counter.**

Step-1: Click on "Start" to start the conversion.

Step-2: Click on "Stop" to stop converting.

When the conversion is started we can see the binary value and its simultaneous Gray Code value. After crossing $(1111)_2$ the conversion restarts from $(0000)_2$.

## Experiment-6: Master-Slave Flip-Flop Stimulator

**Objective: To design Master-Slave Flip-Flop Stimulator**

Step-1: Use 'CLK', 'J', 'K' buttons to set the values OR Write the values in the specified text box.

Step-2: Click on "Generate" to generate one cycle of Master-Slave Flip-Flop.

Step-3: Click on "Reset" to reset the program.

This will generate the required Master-Slave Flop-Flop waveform.