# Communications Lab(304194)

**Teaching Scheme:**
Practicals: 4 Hrs/week

**Examination Scheme:**
PR: 50Marks
TW: 50Marks

## Information Theory & Coding Techniques

**Note :**

1. Perform any 9 experiments from the given list
2. Experiments are to performed using suitable software like C/C++, Matlab, Octave, LabVIEW, Scilab etc.
3. Minimum 2 experiments are to be implemented in C/C++.

| | **Name of the experiment** |
|---|---|
| 1 | Write a program for determination of various entropies and mutual information of a given channel. Test various types of channel such as<br>a) Noise free channel.<br>b) Error free channel<br>c) Binary symmetric channel<br>d) Noisy channel<br>Compare channel capacity of above channels. |
| 2 | Write a program for generation and evaluation of variable length source coding using C/MATLAB (Any 2)<br>a) Shannon – Fanocodingand decoding<br>b) Huffman Coding and decoding<br>c) Lempel Ziv Coding and decoding |
| 3 | Write a Program for coding & decoding of Linear block codes. |
| 4 | Write a Program for coding & decoding of Cyclic codes. |
| 5 | Write a program for coding and decoding of convolutional codes |
| 6 | Write a program forcoding and decoding of BCH and RS codes. |
| 7 | Write a program to study performance of a coded and uncoded communication system (Calculate the error probability) |
| 8 | Write a simulation program to implement source coding and channel coding for transmitting a text file. |
| 9 | Implementation of any compression algorithm for either audio, image or video data. |
| 10 | Implement a model of communication system based on Spread Spectrum Communication System |

# Antenna and Wave Propagation

**Group A**

To Measure Radiation pattern, Return Loss, Impedance, Gain, Beam width for the following antennas (Any Five)

1. Dipole antenna
2. Folded Dipole
3. Yagi-Uda
4. Horn
5. Parabolic Reflector
6. Micro strip Antennas

**Group B**

Plot Standing Wave pattern and Measure SWR for open, short and matched termination

**Group C**

MATLAB/C/Scilab Simulation of following antenna arrays (Plotting radiation pattern)

1. Broad side linear array with uniform spacing and amplitude
2. End fire linear array with uniform spacing and amplitude
3. Binomial array
4. Dolph-Tchebyshev

Any three of above experiments from Group C to be carried out by using any **EM simulation software** (compulsory).