LIST OF PROJECTS FOR ELE 436 COURSE:

1) Armstrong’s phase modulator and FM demodulation with PLL:
   - Modeling Armstrong’s modulator, quadrature phase adjustment, deviation calibration, introduction to the amplitude limiter, introduction to the PLL as an FM demodulator.

2) The Costas Loop:
   - Using the Costas loop for carrier acquisition from and demodulation of a DSBSC signal.

3) AM modulation of speech:
   - To modulate and demodulate speech using Amplitude Modulation technique.

4) FM modulation of speech:
   - To modulate and demodulate speech using Frequency Modulation technique.

5) Bit Error Rate measurement in the noisy channel:
   - Ability to setup a digitak communications system over a noisy channel, bandlimited channel, with provision for line-coding, instrumentation for Bit Error Rate measurements.

6) PCM TDM:
   - Creation of a time division multiplexed pulse code modulated – PCM – TDM signal by interlacing two PCM signals. Demultiplexing of same.

7) QAM and QPSK:
   - Understanding QAM indigital communications as a generator of a quadrature phase shift keyed signal. Demodulation of QPSK.

8) Spread spectrum – DSSS and CDMA:
   - Demonstration of some of the principles of a direct sequence spread spectrum (DSSS) system.

9) Weaver’s SSB generator and Weaver’s demodulator:
   - Exposure to weaver’s SSB generator, and its alignment procedure. Alignment of weaver’s SSB receiver.
**Project Guidelines:**

1) 2-3 students in one group.

2) Select a project from the above list and report it to the TA’s

3) Each group must complete the project in 2-3 lab sessions and hand in the reports to the TA’s before 5th December

4) Student’s can refer to the TIMS experiment manual to get an idea about the project.

5) Each student has to hand in a final project report to Dr.Kumaresan. The report should contain,

   a) Aim

   b) Theory behind the project.

   The student has to show enough evidence that he/she completely understood the theory behind the project.

   c) Experimental Procedure

   d) Conclusion