Course Number and Title	:	**ELC3920 Communication Lab I**
Credits	:	2
Course Category	:	Departmental Core
Pre-requisite(s)	:	ELC2410 Signals and Systems
		EL-2420 Principles of Communication Engineering I
Contact Hours (L-T-P)	:	0-1-2
Type of Course	:	Laboratory
Course Assessment	:	Continuous Evaluation (60%)
		End-semester Examination (40%)

Course Outcomes

After completing this course the students shall be able to:
1. Generate and analyse continuous wave and pulse modulation schemes.
2. Analyze and synthesize a periodic wave and study harmonic distortions.
3. Determine propagation and radiation characteristics of transmission media.
4. Write lab reports and defend the results.

List of Experiments

The following all eight experiments are to be performed:

1. (a). Determine the first 10 harmonics of a square wave of given frequency and amplitude using spectrum analyser. Compare the experimental values with the theoretical values of harmonics obtained from Fourier series.
(b). Synthesize the above square wave by summing the first 3, 5, and 10 harmonics.

2. Generate an amplitude modulated signal using the given AM modulator. Also, determine the modulation characteristic of the given modulator.

3. Generate a frequency modulated signal using the given FM modulator. Also, determine the modulation characteristic of the given modulator.

4. Design an envelope detector for the demodulation of the given AM signal. Also, determine the maximum modulation index and modulating signal frequency for proper detection.

5. Determine the velocity of propagation of HF pulses through the given transmission line. Calculate the inductance per meter (L) and the capacitance per meter length (C) of the given line. Also, trace the reflections observed at the other end of the given line terminated into different loads.

6. Perform sampling and reconstruction of a sinusoidal signal.

7. Determine the characteristics of the given phase-locked loop (PLL) and demonstrate its application as an FM demodulator.

8. Determine the frequency and wavelength in a rectangular waveguide working in TE_{10} mode. Also, study its attenuation characteristics.