

**IV Semester**

Communication Laboratory I			
Course Code	21ECL46	CIE Marks	50
Teaching Hours/Week (L: T: P: S)	0:0:2:0	SEE Marks	50
Credits	1	Exam Hours	3
<b>Course objectives:</b> This laboratory course enables students to <ul style="list-style-type: none"> <li>• Model an analog communication system signal transmission and reception.</li> <li>• Realize the electronic circuits to perform analog and pulse modulations and demodulations.</li> <li>• Verify the sampling theorem and relate the signal and its spectrum before and after sampling.</li> <li>• Understand the process of PCM and delta modulations.</li> <li>• Understand the PLL operation.</li> </ul>			
Sl.No.	Experiments		
1	Design of active second order Butterworth low pass and high pass filters.		
2	Amplitude Modulation and Demodulation of (a) Standard AM and (b) DSBSC (LM741 and LF398 ICs can be used)		
3	Frequency modulation and demodulation		
4	Design and test Time Division Multiplexing and Demultiplexing of two bandlimited signals.		
5	Design and test i) Pulse sampling, flat top sampling and reconstruction. ii) Pulse amplitude modulation and demodulation.		
6	Design and test BJT/FET Mixer		
7	Pulse Code Modulation and demodulation		
8	Phase locked loop Synthesis		
9	Illustration of (a) AM modulation and demodulation and display the signal and its spectrum. (b) DSB-SC modulation and demodulation and display the signal and its spectrum. (Use MATLAB/SCILAB)		
10	Illustration of FM modulation and demodulation and display the signal and its spectrum. (Use MATLAB/SCILAB)		
11	Illustrate the process of sampling and reconstruction of low pass signals. Display the signals and its spectrums of both analog and sampled signals. (Use MATLAB/SCILAB).		
12	Illustration of Delta Modulation and the effects of step size selection in the design of DM encoder. (Use MATLAB/SCILAB)		



**Course outcomes (Course Skill Set):**

At the end of the course the student will be able to:

1. Demonstrate the AM and FM modulation and demodulation by representing the signals in time and frequency domain.
2. Design and test the sampling, Multiplexing and PAM with relevant circuits.
3. Demonstrate the basic circuitry and operations used in AM and FM receivers.
4. Illustrate the operation of PCM and delta modulations for different input conditions.

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 35% (18 Marks out of 50) in the semester-end examination (SEE).

**Continuous Internal Evaluation (CIE):**

CIE marks for the practical course is **50 Marks**.

The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled down to 30 marks (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct 02 tests for 100 marks, the first test shall be conducted after the 8<sup>th</sup> week of the semester and the second test shall be conducted after the 14<sup>th</sup> week of the semester.
- In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability. Rubrics suggested in Annexure-II of Regulation book
- The average of 02 tests is scaled down to **20 marks** (40% of the maximum marks).

The Sum of scaled-down marks scored in the report write-up/journal and average marks of two tests is the total CIE marks scored by the student.

**Semester End Evaluation (SEE):**

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University

All laboratory experiments are to be included for practical examination.

(Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. **OR** based on the course requirement evaluation rubrics shall be decided jointly by examiners.

Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.

Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by



**Introduction**

Research indicates suggested for 2020 for communication system. The research presented will focus on 2020. The main aim of this research is to provide a clear and concise overview of the 2020 market and current market that is related to the 2020 market. The research is based on a review of the current market and the research is based on the research.

Change of research is related to the current market and the research is based on the research. The research is based on the research.

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Research suggested is based on the research.

**Research suggested is based on the research**

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