Semester	V	Course Title	Digital Signal Processing Lab	Course Code	18ECL57
Teaching Period	50 Hours	L – T – P – TL*	0 – 0 – 3 – 3	Credits	4
CIE*	40 Marks	SEE*	60 Marks	Total	100 Marks
CREDITS – 04					

Course Objectives: This course will enable students to

- Simulate discrete time signals and verification of sampling theorem.
- Compute the DFT for a discrete signal and verification of its properties using MATLAB.
- Find solution to the difference equations and computation of convolution and Correlation along with the verification of properties.
- Compute and display the filtering operations and compare with the theoretical Values.
- Implement the DSP computations on DSP hardware and verify the result.

Laboratory Experiments

Following Experiments to be done using MATLAB / SCILAB / OCTAVE or Equivalent:

1. Verification of sampling theorem.
2. Linear and circular convolution of two given sequences, Commutative, distributive and associative property of convolution.
3. Auto and cross correlation of two sequences and verification of their properties.
4. Solving a given difference equation.
5. Computation of N point DFT of a given sequence and to plot magnitude and phase spectrum (using DFT equation and verify it by built-in routine).
6. (i)Verification of DFT properties (like Linearity and Parsevals theorem, etc.) (ii)DFT computation of square pulse and Sinc function etc.
7. Design and implementation of FIR filter to meet given specifications (using different window techniques).
8. Design and implementation of IIR filter to meet given specifications.

Following Experiments to be done using DSP Kit

9. Linear convolution of two sequences.
10. Circular convolution of two sequences.
11. N-point DFT of a given sequence.
12. Impulse response of first order and second order system.
13. Implementations of FIR filter.

Conduct of Practical Examination:

- All laboratory experiments are to be included for practical examination.
- Strictly follow the instructions as printed on the cover page of answer script for breakup of marks.
- Change of experiment is allowed only once and Marks allotted to the procedure part to be made zero.

Reference Books:

- Vinay K Ingle, John G Proakis, Digital Signal Processing using MATLAB, Fourth Edition, Cengage India Private Limited, 2017.