**19EC32P2 – DIGITAL SIGNAL PROCESSING LAB**

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| **Course Category:** | | Program Core | | **Credits:** | 1.5 |
| **Course Type:** | | Practical | | **Lecture-Tutorial- Practice:** | 0 - 0 - 3 |
| **Prerequisite:** | | Signals and system, digital signal processing and digital image processing. | | **Sessional Evaluation:**  **External Evaluation :**  **Total Marks:** | 40  60  100 |
| **Course**  **Objectives** | Students undergoing this course are expected tounderstand: | | | | |
| 1. Basic operations varies filters and images.  2. Verification of various systems. | | | | |
| **Course Outcomes** | Upon successful completion of the course , the students will be able to: | | | | |
| CO1 | | Generate various filters using MAT lab. | | |
| CO2 | | Find the Inverse z-transform using residue method. | | |
| CO3 | | Perform linear convolution and cross correlation of two sequences. | | |
| CO4 | | Compute the DFT and IDFT of a given sequence. | | |
| CO5 | | Perform linear convolution using DFT | | |
| CO6 | | Design digital band pass and band stop filters. | | |
| **Course**  **Content** | **LIST OF SIGNAL PROCESSING EXPRIMENTS**  1. Generation of discrete time signals like sine, cosine, exponential, square and sawtooth  2.Perform linear convolution and cross correlation of two sequences.  3.Constant co-efficient difference equation.  4.Computation of the DTFT of a given sequence x (n).  5.Computation of the DFT and IDFT of a given sequence.  6.Computation of the efficiency of FFT algorithm with the DFT algorithm.  7.Linear convolution using DFT.  8.Inverse Z-transform using residue method.  9.Design Chebyshew digital low pass filter using bilinear transformation.  10. Design a Butterworth digital low pass filter.  11. Design FIR digital low pass filter.  12. Design digital band pass filter.  13. Design digital band stop filter. | | | | |

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| **Contribution of Course Outcomes towards achievement of Program Outcomes** | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | - | - | 1 | - | - | 2 | - | - | - | 2 | 3 | 3 |
| CO2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | - | - | 2 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 2 | 2 | 3 |
| CO4 | 3 | 3 | 2 | 2 | 2 | 1 | - | 1 | - | 2 | - | 2 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 1 | - | - | 1 | - | - | 2 | 3 | 2 |
| CO6 | 3 | 3 | 2 | 2 | 2 | 1 | - | 1 | 2 | - | - | 2 | 3 | 2 |