**6th Semester BS Computer Science**

Course Name: **Digital Signal Processing**

Credit Hours: **3 + 0**

Prerequisites: **None**

**Course Outline:**

One and N-dimensional signals and systems, Sampling theorem, Discretetime Fourier transform, discrete Fourier transform, fast Fourier transform, ztransforms: stability and minimum phase signals/systems, Linear filtering of signal: Time domain: Difference equations and convolution, Impulse invariance, bilinear transform, FIR filter design, 2D filter design, Statistical signal processing: Stochastic signals: correlation functions and power density spectra, Optimal filtering: Wiener filters, Adaptive filters: LMS and array processing.

**Reference Materials**:

1. Discrete-Time Signal Processing, 2nd edition Alan V. Oppenheim and Ronald W. Schafer, Prentice-Hall.